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DEATH OF MR. THOMAS J. HAYWARD.

With profound sorrow we report the death of Mr. Thomas J. Hayward, President of the Bartlett-Hayward Company, of Baltimore, Md., who passed away at his home in Baltimore the morning of Saturday, October 23d. The burial services and commitment to the grave were made last Monday afternoon. The fatal ending of the disease from which he so long suffered came with all the greater shock, in that the day prior to the end he had been apparently in better condition than for months past. Next week we will print some record of his life, which was one of energy, probity and success.

BRIEFLY TOLD.

TAR FOR ROAD SURFACING.—From the present indications that some of the more hopeful ones in the industry are asserting the demand for tar will increase to such an extent in the near future that the question will be one of supplying the demand rather than one of practically giving it away, as has been done, and as we fear is being done, in many localities. The greatest field yet undeveloped is that for road surfacing, and a most valuable presentation of the subject was made recently by Mr. W. H. Fulweiler in a paper read by him before the Franklin Institute. In summing up the situation the author stated: The First International Road Congress agreed that a firm, well drained foundation was the first essential; that tar properly applied as a surface application would lay the dust and protect the road from light motor traffic, but that for heavy motor traffic the surface material to a depth of 2 inches should be mixed with the binder. We may say for a tar treatment properly applied that it makes a road: Dustless, more hygienic, less troublesome and expensive to keep clean, less mud, no water cuts, more pleasing to travel over from its resiliency, less expensive in the long run to maintain. The office of Public Roads made a census of the roads of the United States in 1904, with the following results: Total mileage of public roads, 2,161,570; of this 7.14 per cent. were improved roads.

108,233 miles of gravel.
38,622 miles of stone.
6,810 miles of shell, oil, etc.

153,665

During the 5 years just past there has been a great awakening in the interest in good roads, and from the 1908 report of the office of Public Roads we now have

124,468 miles of gravel road.
43,450 miles of stone road.
8,512 miles of shell, oil, etc.

176,430 miles of improved road.

Leaving out the 8,512 miles of shell and oil road, we have 177,000 miles of recognized improved road. In England and Wales there are:

23,826 miles of main road.
95,211 miles of side road.

119,037 miles.

On these roads England is spending, practically in maintenance alone, $347 a mile on main road and $107 a mile per year on the side roads. In France the length of roads and annual expenditure per mile are as follows:

National roads	22,009 miles.	$230 per mile.
State roads	16,188 "	180 "
Important town roads.	128,522 "	130 "
Village roads	155,093 "	55 "
Total	321,812 miles.	

Average per mile = $102.

We are spending less than $40. But our roads are in the building and the next 40 years will see an enormous increase in the mileage of good roads. We already have State aid laws in 23 States, and during 1908, 16 States spent $18,000,000 and built 1,800 miles of new road. When we consider that in districts where the roads are improved the attendance of school children is 77 per cent, while in those districts where poor roads prevail it is only 53 per cent., and that from the best figures obtainable the American farmer is spending from 13 to 25 cents per ton mile more than he should on every load that he hauls to the railroad station, we cannot but feel that the country as a whole will awaken to the soundness of good roads as an investment, and that we will, as a nation, soon excel the world in the matter of improved roads. They cannot be built in one year nor ten, but if the

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movement is even properly started nothing can keep it back. With the increasing use of motor cars some form of surface treatment is absolutely essential to preserve the integrity of a macadam surface. It has been universally admitted that tar properly treated and applied fulfils this purpose admirably.

FIELD NOTES.—In the excellent article, which appeared under the above title in your issue of October 11th, page 859, the author brought out, in a most convincing manner, the benefits to be derived from well kept, legible records; but, from my point of view, there is another point, the presentation of which would add materially to the value of such data. While it is, of course, desirable that field books be kept in a comprehensive as well as a legible manner, if the results were transcribed in the office immediately after each job has been plotted in the books, many details which very possibly might be omitted would be immediately discovered and further measurements could then be obtained while the matter was fresh in the minds of everyone on the job. Further, the detail drawings should be made upon sheets, all alike in size, using as many as necessary for all of the work, the paper preferably being cross-sectioned, so that the scale would at once be apparent, and of thin enough quality so that blue prints could be made. File in streets in loose-leaf book form, lock the book and keep it in the safe!—RECORDS.

A PROGRESSIVE STEP IN GAS LIGHTING.—The new photometrical laboratory of the United Gas Improvement Company, which was described last week page 959, marks another forward step in the development of the science of gas lighting; not that this branch of the business has been neglected—far from it—in fact, rather that its scope has been less broad than the subject demands. Laboratories for testing the gas supply have long been in general use, even when there were no stringent legal requirements to be met; but this new plant, in its equipment and location, bids fair to produce results which have not been obtainable anywhere else in this country, possibly not abroad. Practically every kind of artificial gas can be delivered and stored, and suitable apparatus is at hand for testing as to contents, heating and lighting values. Every commercial electric lamp can be tested, and, further, any artificial luminant, with its accessories, can be tested for its illuminating value. That the use of artificial gas has passed the rule-of-thumb stage no one can gainsay, and we congratulate the engineering staff of the Company upon its foresight, and Mr. Charles Bond, its photometrician, upon the opportunity which he will have to aid in the development of this important phase of gas lighting.

CURRENT MENTION.—

MR. CHARLES H. WALELTON, Manager of the JOURNAL, was united in marriage to Miss Susanna Mary Spence, the afternoon of October 27th, in the Church of the Holy Communion, New York city, the Reverend Henry Mottet officiating.

THE educational exhibition, maintained for a long spell just now by the Peoples Gas Light and Coke Company, in the easy get-at-able, well-equipped and well-officered premises, No. 144 Michigan avenue, seems in better favor than ever with the residents, a judgment reached through noting the number of interested people who visit it daily. Of a verity, Mr. Clark builded well when he built the show at or in 144 Michigan.

THE New Haven (Conn.) Gas Light Company announces that it has made an arrangement under which it has connected Mr. L. A. Charles to its Sales Department as Industrial Engineer. His headquarters are in the Company's beautifully fitted up salesroom, 70 Crown street.

EARLY in September, Mr. M. J. Hill and Mr. M. J. Loxley, of Philadelphia, purchased all the shares outstanding of the capital stock of the Eufaula Gas, Electric Light and Power Company. The former owner of this property was Mr. M. F. Maury, of Philadelphia, and the transfer ownership is largely, if not altogether, through the efforts of Mr. M. J. Loxley, who was subsequently chosen Secretary of the Eufaula concern.

APPLICATION has been made to the Riverhead (L. I.) Town Board for a franchise under which to operate a gas plant. Mr. M. H. Woodhull, of Patchogue, L. I., is the main party in interest. A gas works should be a paying proposition in the place named.

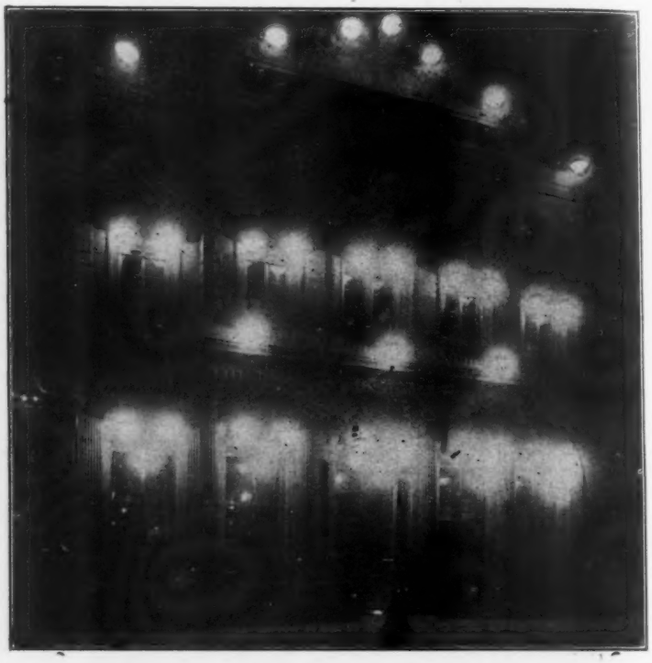
MR. W. A. BAEHR, of Chicago, has been retained to advise the authorities of Wheeling, W. Va., as to what improvements are necessary to bring the municipal gas plant of that city up to modern condition. Gas men for the Wheeling authorities; no Bemis, either. No, a well-accredited gas engineer is chosen.

MR. L. P. LOWE, who is now presumed to hold the position of President to the California Light and Fuel Company, is about to endeavor to convince the Albany Commercial Club, of Albany, Ore., that he and his associates are the proper ones to be empowered to construct and operate a gas plant in that city.

THE City of St. Catharines, Canada, has applied to have the St. Catharines Gas Company impleaded as third party to the action which has been brought by Mr. George Holmes, against the city of St. Catharines, for personal injuries sustained by him through a fall while walking along Bowery street, on a certain night, at the hour of 6 P.M., when it was quite dark, but at which time no street lamps had been lighted. The city declares that the Company was liable for the non-illumination, if, as the plaintiffs declare, the street lamps were not lighted.

The Brooklyn Union Gas Company's Hudson-Fulton Illumination.

Among the many buildings in New York which were illuminated during the Hudson-Fulton celebration was the home of the Brooklyn Union Gas Company, 100 Remsen street, Brooklyn Borough, shown in the accompanying illustration. And the writer heard it said many times that no other illumination during the celebration, shown in Brooklyn Borough, attracted more attention.



This illumination was effected by means of Humphrey arc lamps, and 35 of the outdoor upright type were used. That they were used effectively the reader may readily judge.

CONTINUED FROM PAGE 958.

PROCEEDINGS, EIGHTEENTH ANNUAL MEETING, MICHIGAN GAS ASSOCIATION.

HELD ON BOARD STEAMER "ST. IGNACE," FROM DETROIT EN ROUTE TO MACKINAC ISLAND.

FIRST DAY—NOON SESSION.

The President called upon Mr. Wm. A. Dunkley to read the paper entitled

STUDIES IN THE MANUFACTURE OF COAL GAS,

which was the joint production of Prof. Alfred H. White and Messrs. J. H. Wyman, Wm. A. Dunkley and Perry Barker. Rather than publish this other than *in extenso*, and, owing to the fact that certain plates in connection therewith have not been brought out, we will postpone the printing of the text for a fortnight, both of paper and discussion.

ROUTINE BUSINESS.

The President—Before adjourning, in consonance with custom, I will appoint the following committees:

On Nominations.—Messrs. F. W. Blowers, W. W. Johnson and W. H. Frost.

On Place of Next Meeting.—Messrs. H. M. Eaton, C. Collins and W. J. Barrett.

On Resolutions.—Messrs. Irvin Butterworth, H. Douglas and J. J. Knight.

A BRACE OF ANNOUNCEMENTS.

The Secretary—The subject of "tips" has been considered by the Executive Committee, * * * the members of which will explain what it was thought best to recommend in relation thereto. Right after dinner to-night, at 8 o'clock, we will have the pleasure of listening to a talk on the conservation of fuels, by Mr. J. C. Roberts, who is Assistant Chief Engineer in charge of the U. S. Geological Survey, at Washington, D. C. The "talk" will be illustrated with lantern slides. Then we have a telegram from the Lake Superior Corporation

extending to us an invitation to visit their plant to-morrow afternoon at the Canadian "Soo." They operate their own mines and railroad, and manufacture the finished product. It will be interesting to see the manufacture of steel rails.

On motion of Mr. Butterworth the President appointed a sub-committe of three on "Tips," with power to act—Messrs. Butterworth, Blauvelt and Graves.

Upon motion the meeting was declared adjourned until 10 o'clock the following morning.

SECOND DAY—MORNING SESSION.

The President called the meeting to order at 10 o'clock and stated that the Secretary had

SOME TELEGRAMS

to read.

The Secretary—We received last evening a wire from Philip Breitmeyer, Mayor of Detroit, in which he said: "Wishing you and your Association a safe voyage and safe return." Also, one from the Lake Superior Corporation, reading as follows: "Will be glad to extend courtesy of our plant to your Association." That is the steel plant at the Canadian "Soo," which I spoke about yesterday. Those who would like to go to the Canadian "Soo" and see them make steel rails will be well repaid for the trip. Some arrangement for a boat will be made, announcement of which will be made later.

The President—If there is no objection we will instruct the Secretary to answer the two telegrams. The first order of business concerns the

PROPOSED AMENDMENTS TO THE CONSTITUTION.

The Secretary—The first amendment to be considered is placed before the Association in this form:

"On account of the uncomfortably warm weather that usually prevails in Michigan about the date of the annual meeting of the Michigan Gas Association as now fixed by our Constitution, I hereby recommend and urge, on behalf of whom we believe to be a large proportion of our membership, that the Constitution of our Association be so changed that our annual meeting will begin the third Wednesday of May in each year."

The President—You have heard the amendment proposing to change the date from September to May. Is there any discussion?

Mr. Douglas—I heartily favor that change, not only on account of the weather, but from the fact there is no meeting of any other association in the spring at present. When we changed to September, the Ohio met in March, the Western in May. These being now merged into the Gas Institute, which meets in October, places our meeting and that of the Gas Institute in following months, leaving the spring months undated. I think it would be an excellent plan to change this order.

Mr. Waterbury—I do not think Mr. Douglas is quite right in that, since the Wisconsin and one or two other associations have their meetings in May.

Mr. Knight—Were not the meetings at one time held in May?

The Secretary—They were held in February.

Mr. Knight—It seems to me, if this way of holding a convention should prove satisfactory, it would be a bad change to make, since we might want to hold it this way again.

Mr. Lynn—As far as the boat excursion is concerned, May is the same as September. The boats start on their regular runs the 1st of June and lay up the 1st of September. The Chamber of Commerce of Detroit made their Annual Excursion in May, on one of these boats from Detroit to Milwaukee and return, so that, as far as a boat trip is concerned, May would be as good as September.

Mr. Knight—A number of us take our vacations about this time, and it is not usual to take them in May. This does not strike me as a very good change.

Mr. Lynn—I understand you have vacations all the time in Kalamazoo.

Mr. Seymour—One matter with which a spring meeting would interfere is the fellowship on papers. As it is now, they have a chance to get their data together and write a good paper on the year's work. If we had the meeting in May they would not have time to accumulate the data they have obtained, and it seems to me they would always be a year behind time. It would break into the middle of one man's scholarship.

Mr. Shacklette—I do not think anyone will disagree that it is possible to have some hot weather in September, but the same is true of May. In the month of May most gas men are rather busy with spring extensions. And, if the weather is bad, one feels it more in the spring than in the fall, whereas if the weather is good, they would not care to go off on a jaunt to a gas convention whether on a boat or not.

The President—If there is no further discussion I will ask all in favor of the amendment to say "Aye;" contrary "Nay." [The President declared the amendment lost.] The next amendment regards the Secretary's salary.

The Secretary—This amendment is to Article 17, Section 5, of the Constitution: "One person may be elected to the offices of Secretary and Treasurer, and if so elected shall receive $100 per year salary." It is proposed to amend this so that the last clause shall read: "And if so elected shall receive $200 per year salary."

The President—You have heard this amendment. Is there any discussion?

Mr. Butterworth—I think it should be made $300 instead of $200, and I move to substitute $300 in place of $200.

The President—The amendment has been offered to amend the amendment to read $300 instead of $200.

Mr. Dewey—If we do this, does it not put the matter over until another year?

The President—No. The provisions have been complied with, and the amendment, as submitted by the Executive Committee, is subject to amendment.

The Secretary—I will read what the Constitution provides for regarding amendments: "All propositions for adding to, or altering any of the provisions of the foregoing Constitution shall be laid before the Executive Committee, who may bring them before the next general meeting of the Association, if they see fit, and such Committee shall be bound to do so on the requisition, in writing, of any five members of the Association. All proposed amendments or additions to the Constitution shall be presented by the Executive Committee in their regular report to the Association during the first session of any regular meeting, and the voting upon their adoption shall be made the first order of business for the second session of the meeting. Such propositions shall be decided by ballot and shall require two-thirds of the votes cast for their adoption.

The President—The amendment to increase the salary of the Secretary and Treasurer has been offered in proper form and we can, therefore, consider the amendment to amend the amendment. [Upon being put to a vote the amendment to the amendment to the Constitution and the amendment to the Constitution, as amended, were unanimously adopted, increasing the salary of the Secretary and Treasurer to $300.]

The Secretary—Mr. Trimble, of the Gas Company, here at the Soo, wished me to announce that there will be a boat alongside about 1:30, ready to take the members through the Canadian Locks and land us at the dock of the Steel Company. On the return trip will take us down through the American Locks.

The President—The next order of business is the paper by Mr. V. F. Dewey, of Detroit, on

THE HEAT CONDUCTIVITY OF FIREBRICK.

[For the text of the Dewey paper, see JOURNAL, Oct. 4, p. 819.]

Discussion.

Mr. Polk—This very interesting paper by Mr. Dewey will appeal to everybody in the firebrick business, who cannot fail to be very much interested in it. I hoped to prepare a discussion on it, but have not had sufficient time to so do. I might say that, regarding his information from the Harbison-Walker Refractories Company, we used the like method for determining relative conductivity of our material, excepting that we use a lead button in place of paraffine to get the relative conductivity. I would like to ask Mr. Dewey what is the temperature carried on the benches at Detroit? As to this question of shrinkage referred to in connection with firebrick material, I doubt very much if anyone knows absolutely whether this is a shrinkage or not. For instance, in mixing fireclay material, we can take out the shrinkage entirely from the burnt portion of the mixture; that is to say, practically eliminate the shrinkage; yet after that material is used in a bench or furnace where the heat exceeds what it was burnt under the kiln, it will, we might say, compress if it is used under a load. Whether that is shrinkage or not I think is very doubtful. In all probability it is due to some voids in the material being replaced by the material itself. I know of some qualities of material which will stand any amount of heat without a load, and also stand any amount of heat without shrinkage; but if you combine the two, the material will compress. Along those same general lines, I might

say, we have carried on considerable experiments in regard to the tensile strength of clay, which have proved interesting. There is no doubt that the bond of clay under high temperature depends a great deal on the tensile strength. We have discovered a clay recently that has a tensile strength of 100 to 150 times anything we knew of heretofore and eminently useful for gas bench or other furnaces where it has to carry weight, both directly or indirectly, through tension. There is a point in the matter where a part of the volume is under tension, and I think this is a very important point. We are liable to discover something more important than we have hitherto done along these lines. Referring to the paper that Mr. Dewey has referred to, it might be of interest to the members of the Association to quote a few notes from it, which appear in "Electrochemical and Metalurgical Industry" for September. The following has suggested itself to the writer by the study of the paper of Wologdine:

"Proper regard being given to the fusibility of the brick, all clay bricks, terra cotta, building bricks and firebricks, have practically equal co-efficients of heat conductivity. The co-efficients are differentiated in this class of refractory material solely by the temperature of burning, and not by the character of the clays or their chemical composition.

"In all refractory materials, including the special bricks, such as chrome, magnesia, carborundum or graphite, the heat conductivity is a direct function of the temperature of burning. I am including as subject to this rule the amorphous carbon and the graphite electrodes, though this has not yet been confirmed by actual determination to my knowledge.

"The great value for heat insulation purposes of silica brick, when burned at a moderate temperature, 1,050° C., is due to the fact that their co-efficient of heat conductivity is practically equal to that of Kieselguhr brick, and only one-half that of clay brick. It is desirable that further determinations be made in this regard by independent observers.

"The unique characteristic of chrome bricks is that their co-efficient of heat conductivity is independent of the temperature.

"There are remarkable and often enormous variations in the permeability to gases of the same bricks with the increase in temperature; in one instance the permeability from 3.3 liters per hour to 2.41 liters per hour. This shows the importance of scientifically selecting the clay mixtures for a given work, as for crucibles or retorts, where, as in zinc metallurgy, the permeability to gases has a material influence on the metal recovery. In this connection the nil permeability of graphite crucibles is to be noted. Perhaps the same result might be obtained at a much reduced cost by substituting clay flakes for the graphite flakes, as proposed by H. Putz (German patent, 198,840, September 29, 1907).

"To secure efficient heat insulation refractory materials should be burned at the lowest allowable temperature. This burning temperature is generally known: It is the maximum temperature to which the bricks will be exposed in the furnaces. The use of the maximum temperature is necessary in order to prevent the brick from shrinking any further when set in the furnace walls. Though this last fact is well known, it is often neglected, and a shortening of the furnace life is the result."

I also wish to read a little extract from a paper by Mr. S. Wologdine, and translated by Mr. Queneau, of Philadelphia. in which it is stated:

"The important place which refractory materials occupy in modern industry demands an accurate knowledge of their physical and chemical properties. This knowledge is required not only in their manufacture, but also for their economical applications.

"Consideration of the insulating properties of the refractory material, *i. e.*, the heat conductivity and gas permeability, is of the utmost importance in the construction of furnaces and in the manufacture and use of bricks, retorts, crucibles, etc. These properties have a direct bearing on the fuel utilization."

Mr. Dewey refers to difficulties in building the front walls of a bench. There are a great many items in construction that have to be looked out for. For instance I think it would hardly be possible to build, say a 13½-inch wall with 4½-inch lining of silica brick or any other kind of brick that did not run the same thickness as the outer courses. In other words, that suggestion is alright theoretically, but practically it does not work out. It is difficult to build a wall out of bricks that do not run absolutely the same in thickness.

Mr. Parker—I would like to say about this that Mr. Roberts, in his lecture last night, stated that they built their furnaces with air spaces between the inner and outer walls, and that heat traversed this air space quicker than it did solid material. If that were the case I do not see that we gain much by putting either air or asbestos space between the inner and the outer wall.

Mr. Polk—He stated they had two 9-inch walls. You could not make two of them out of 13 inches of brick. It is difficult to build a wall and have it stand up at all with heat on one side and air on the other.

Mr. Lea—This paper does not lend itself to any detail discussion without careful study. I recognize most of the work it covers, and there is an importance to that work not generally recognized. There have been developments within the past 2 years, in connection with the verticals at home and abroad, and in connection with Worcester setting, that indicate there are possibilities in gas construction that we have not begun to recognize, and that they affect enormously the cost of gas manufacture. The kind of work Mr. Dewey has done is in line with that, and it is important that all the work that is being done should be summarized. I would like to move that the Michigan Gas Association appoints Mr. Dewey, or some other member, to continue this paper another year, and to send the writer on at least a 2 weeks' trip to various points where work is being done to get together all the "dope" that can be had on this subject, and present it all to us a year from now, and that the Association pays the expense of the trip. I do not think there is any other single point that can be investigated regarding the manufacture of gas that promises a bigger yield in dollars and cents than this investigation.

The President—Mr. Lea is out of order at present. No motion should be made until the discussion of Mr. Dewey's paper has been closed. We will be glad to entertain the motion at that time.

Mr. Little—You can make a retort of brick very easily, but it would cost in the neighborhood of $1.50 per 1,000 brick, and I doubt if it would stand longer or give better results than any other material. A retort made of tiles like that would cost tremendously, and would not stand up under pressure at all, for if you had any damp coal, or any moisture at all in the coal, it would immediately spoil the magnesite. If you had a magnesite brick in use for 2 days and cooled it down gradually, it would crack all through. So it won't do for retort work. Another point is if you put magnesite material under pressure, when it gets to 2,000° F., it will all squeze out more than any clay brick. Mr. Dewey's paper is one of the most valuable that has ever been given to any Association, not excepting Mr. Walter's. He is the only man I know who has arrived at any definite conclusion and has had the courage to give expression thereto. Many of the tests have been made seem to show that he was trying to arrive at the candle power of the brick by melting so much wax in a given time on top of it. That is no practical use at all. It may be generally stated that the denser the brick and the hotter it is burned the greater the conductivity, referring to fireclay brick. When you come to silica brick it is not important how great the density, but the porosity and the conductivity are almost constant throughout at almost any temperature.

Mr. Blauvelt—I do not know that I can contribute anything particular to this discussion. However, one interesting feature to which I might call attention is that, in these series of tests to determine the calorimetric conductivity, there is no description of the method of getting an intimate contact between the bottom of the calorimeter tank and the top of the test brick. It seems to me that perfection of contact obtained there would have a great deal to do with the final results. If the surface of the brick were somewhat rough, so that you had practically a dead air space and only contact at points, you would get apparently a very much lower calorimetric conductivity than if you had perfect contact, which might affect the results very materially. Coming to retort work, the question was put to me some time ago whether the actual conductivity of brick made as great a difference in the work as some people seemed to think. In other words, are not the conditions for the transfer of heat through the walls of the retort analogous to those in the transfer of heat from the tubes of the boiler to the water inside. A very thin film of dead gas lying next to the boiler surface cuts down the thermal efficiency of the boiler tremendously, much more than the great thickness of metal in the boiler, or this would result in the change from an ordinary steel shell to one of cast iron. A considerable difference in heat conductivity in that case is a matter of small consequence compared with getting intimate contact. When this was put up to me I replied that the point of view of the questioner seemed correct, as far as I could see, while the fact remained that, when we use silica material, the time required to carbonize coal at a given temperature was much less than the time required when other materials of a lower heat conductivity at the same temperature were used. I was much interested in seeing the distinction made by Mr. Dewey between calorimetric and thermometric conductivity. It makes a very important distinction which we should never lose sight of.

Mr. Dewey—I believe Mr. Polk asked the temperature which we carried our benches at station "A." Approximately 2,200° to 2,400° F., sometimes lower than that. Mr. Polk mentioned shrinkage of

firebrick, and Dr. Fritz Leisse, in the paper from which I quoted, has this to say regarding shrinkage:

"Best fireclay bricks have shown, when exposed to 3,092° F. during 14 days, a shrinkage almost exclusively in the direction in which they were loaded, this linear shrinkage amounted to more than 4 per cent., whereas the cubical shrinkage was not quite 3 per cent. The best heat resisting clay has been found to be bauxite. Even this shows a considerable shrinkage, due mostly to the titanic acid mixed with it in its natural state."

I agree with Mr. Polk in stating that the conclusions I made were entirely theoretical. I never intended them any other way. At the same time they may bear some fruit in future investigations. I would like to submit some data I obtained (too late for the paper) on the specific heat of firebrick, in a rather complete paper reported from the Worcester Polytechnic Institute. With the consent of the Association I will simply put that in and you can read it in the published proceeding. Regarding Mr. Blauvelt's asking how we made contact between calorimeter and the firebrick. We experimented thereon a good deal, it might be said quite outside of the work on this paper, which has consumed a good deal of time. We had two men on it for the larger part of two months and have very little to show for all that work, because we had to overcome the very point Mr. Blauvelt suggested. We had a dozen plans and finally used a very fine fireclay spread over the entire top of the brick, not only the surrounding brick but the test brick, and that would give a very good bed for the calorimeter. As long as you have a uniform touch it does not make so very much difference what the material is if it is used uniformly in the comparison. It does not matter whether you use fireclay or what, as long as you have a uniform contact. We could take the same brick and test it, and in a month from that time get the same results. It was impossible to put in this paper all the detail of the preliminary work. Mr. Parker's suggestion as to air space had no reference at all to the paper, because I do not mention air space. I suggested asbestos, which has very much less conductivity than firebrick at any temperature. Regarding the work Mr. Lea suggested, I would say we are going right along with this work. Primarily this paper was not written for the Michigan Gas Association, but on a line of work that we have taken up among our own engineers. This paper is an outcome of that work, and the paper before the American Gas Institute next month, on the analysis of gas oils, is another result of that work, and we have only started. I expect to be away on a trip some time in November through the East, and will look up this subject. I want to have an opportunity of going to Worcester, so that if the Association wishes me to present a resume of what we find, I will be very glad to do it.

Mr. Polk—Regarding what Mr. Blauvelt said with reference to the contact between the test brick and the outer brick, Mr. Wologdine, in performing these same experiments, took the temperature in four different places in the test brick and found it absolutely nil, so that in the future he took the temperature at only one place. Another point that has occurred to me is what Mr. Roberts referred to in his talk last night in regard to the load which firebrick would carry. This would be a very interesting subject for the gas bench users to investigate when the Geological Survey get out their report. There are many things published by the U. S. Geological Survey along these lines that would be of great interest to people using gas benches.

Mr. Dewey—Mr. Craft, of Milwaukee, is here and I should like to have him tell us what has been their experience with a bench of all silica, which was put in there about 3 years ago, and perhaps something about other work that is being done.

Mr. Craft—That bench was built a little over 3 years ago. As I was saying this morning we have not used it, but abused it, because our conditions in Milwaukee are such that we have to get our benches up-and-down in almost no time. In fact we started that bench after 3 days and made gas in it and let it down in the same time, expecting each time to find the retorts, and possibly the settings, pretty badly checked; but we have not found a check in any of the settings or in the retorts. We almost swear by that bench. It is the finest we have ever had and we cannot see where we will get into trouble with it now any more. We have carried as high as 2,700° F., and run an average of 2,500° F. most of the time. There are lots of things about it that make it fine. One thing that has not been mentioned here that pleases us is the freeness with which it lets go of carbon. By just opening one end of the retort and closing the other end, leaving the standpipe open, we can crack the carbon out in 4 hours very easily, and the minute it starts to crack from the retort by putting the chisel in you can crack it all through. In other retorts we have had much more trouble in getting the carbon out.

Mr. Dewey—It is a silica bench all the way through.

Mr. Tippy—How about the fuel efficiency?

Mr. Craft—We have not made any direct tests, so I am not in a position to say.

Mr. Polk—What apparatus is used to measure these temperatures?

Mr. Craft—A pyrometer altogether.

Mr. Dewey—We used the same.

On motion of Mr. Frazer a vote of thanks was extended to Mr. Mr. Dewey for his valuable and interesting paper.

The President—We will now take up the motion made by Mr. Lea. All in favor say "Aye." [Adopted.] This is all we have on our programme for this morning. Our next meeting will probably be tomorrow afternoon after we leave Mackinac.

On motion the convention adjourned until Thursday, Sept. 16th, at a time to be announced later.

THIRD DAY—MORNING SESSION.

The President called the session to order at 11 A.M., and asked Mr. A. S. B. Little, of St Louis, to read his paper on

RETORT BENCHES.

[For the text of the Little paper, see JOURNAL, Sept. 27, p. 763.]

Discussion.

The President—This very interesting paper, which appeals to all the members more closely than any other, is before you for discussion, which I hope will be an extended one.

Mr. Sinsel—I listened to Mr. Little's paper with much interest and profit, and I think in airing his ideas he has created a rather unrestful feeling that will benefit us all by the discussion which will follow. I hope to hear from the bench builders, as I think this is the time when the operators can sit still and hear the other fellow talk.

Mr. Russell—I don't know that I have anything to say except that it seems to me we are going back a great many years. Mr. Little's paper refers largely to brick settings. He does not seem to believe much in vertical retorts either. I have seen, myself, a number of vertical benches, both in Germany and England, more in the former than in the latter. There is no question in my mind that the vertical bench is coming, is going to be used, and will be the successful bench of the future. You speak of brick settings. A good mason, using good brick, laid closely, makes a very good setting, and there is no reason why a well organized and properly conducted firebrick manufactory should not make fittings that fit closely. If you have good brick and settings make them fit properly. With regard to the furnaces spoken of, I think we have all had too small specimens of them in the past. They should be larger, and the small additional expense to make them so would not be large enough to merit consideration if you get your fuel results. I think Mr. Little covered this field very thoroughly. I must say, though, I think he has implied that most of the work that has been done has been done in a slipshod way. I do not believe that. I do not believe any retort manufacturers or constructors have slurred their work. They have instructed their masons to do good work all the way through. That has been my experience. I believe they have all been honest. As to inclined retorts, I think there is a very large field for them. My opinion is that, in a plant of 100,000 to 500,000 per diem output, the inclined bench is the right thing. Between 500,000 and 1,000,000 I think you can install machines that will equal in economic operation any inclined bench.

Mr. Polk—The paper is quite lengthy. It requires considerable reading to discuss it in a proper manner. In going over it for the first time it appears to me it carries a great many conflicting statements. I do not intend to criticize it and, therefore, should probably not discuss it, but if I had an opportunity to write a discussion, there are a number of points that could be given better consideration. On page 2, Mr. Little makes the statement that there is absolutely no use for a free firing bench. Of course, no bench builder promulgates the free fired bench if he can install anything else, but there are a number of cases when it is a necessity, owing to local conditions and labor available and a whole lot of other reasons. I do not think any fireclay material of the proper make will be at all affected by heat as he intimates. If it will be affected a gas bench is no place for it at all. On page 4 Mr. Little refers to the fuel consumption in ½ and ¾ bench as being 14 pounds, and refers to them both being the same. If that is the case I see no argument in favor of a ¾ bench. What

would be the use in putting money into something from which you would derive no benefit?

Mr. Dewey—I do not believe I care to discuss this paper, for I have had no opportunity to compare the different methods of bench construction long enough to say anything. Nines have good points and vertical 8's have good points. We have both kinds in Detroit, and after 3 years in operation of 9's, and 7 years of 8's, I cannot say which I prefer under all conditions. Mr. Widdowson, of Drakes, Limited, Halifax, England, is in the room, and I would like to ask him if he has anything to say on this subject?

Mr. Widdowson—I did not expect to be called upon to take any part in the discussion of your papers, although I have listened to the reading of them with a great deal of interest, and inasmuch as I have only just arrived in this country, I am entirely unprepared to take any active part in the discussion. This paper on bench work is a most interesting one, and as we specialize in this kind of work, it would have been a pleasure to me had I had an opportunity to read the paper beforehand, to prepare something in reply. I hope to be able to take back with me a great many of your new ideas and methods of doing things and, if possible, hope to leave with you something that may be of value as to what we are doing in our country. We have erected at Toronto, Canada, the new benches, 18 beds of 12's, ironwork and brickwork on our patent tube system, and various condensing and washing plants. This plant is not yet in operation and so I am unable to state results. I would like to take this opportunity in expressing my pleasure in being able to attend this meeting, and hope that I may have the opportunity of becoming better acquainted with a good many of you before I leave this country.

Mr. Little—Mr. Russell referred to the fact that we were going back many years in using brick settings, but really it may be that we have lost our way in these later years, and it is better to go back and find the correct way. I do not want in any sense to make the imputation that work on benches had not been done properly, but no matter how many careful men you may have there are always bad ones, and therefore the more simple it is to set up a bench the more liable they may be to give you a good bench. I think Mr. Russell took me up wrongly about the vertical. They give good results, but I do not know how long the machinery will last, especially the coke discharger, which I have explained thoroughly in my paper. As regards the other system of verticals I am in favor of those, but not so long as the candle power minimum remains the same. I think it is the fact that builders of vertical retorts will not give any guarantee on candle power of the gas they will make. Mr. Polk stated I made several conflicting statements, but I think when he has time to read the paper more thoroughly he will find they agree, and if not, if he could, with the consent of the Association, prepare a written discussion, I will be glad to take up any points he will care to make. He said I had no use for the free firing bench, and I have not. I think we should put in a generator bench which is not far from a recuperator bench, and we can get much better results. You can put it in the same space, on the same floor that you can a free firing bench. He also referred to fuel consumption as being the same on ½ and ¾ benches. I explained the reason for the use of a ¾ bench was to get more heat, to draw out the coke and use the trucks for hauling away the coke.

The President—I cannot say anything about retorts or settings either, that will be too hard against the vile work manufacturers put in on benches. Of all the mechanics I have come in contact with, the bricklayer is the most ignorant and the hardest man to get to work. You can tell him you want him to lay brick, leaving a 24-inch opening in the building, and he will run around and ask you how many brick that is. They haven't even a conception of a 2-foot rule. They are the most slovenly mechanics we have to contend with, I don't except the Parker-Russell, nor the Laclede-Christy, nor any of them. They have all done work for me, and I have had trouble with them all. I will take the side of Mr. Little, so far as this part of the question is concerned.

Mr. Russell—I want to say something for the bricklayer. You take an intelligent man and put him into a bench and make him work 10 hours a day between two hot benches, because you have to have that bench in a hurry. He sweats blood, you might say. We have a good many bricklayers and their work is really faithful and hard. They earn their money. Mr. Little advocates, as I understand it, the use of bricks instead of setting blocks. I take issue with him right there. You can make a block if you make it properly that will fit and fit well, and if you are going to cut, there is no more reason why you should not cut blocks than a lot of bricks. If you put brick in there, you have a great many more joints than with blocks, and that was the point I was trying to make a while ago. I do not think that bricklayers as a class are absolutely worthless, as Mr. Little would have you gentlemen think.

On motion of Mr. Frazer, a vote of thanks was tendered to Mr. Little for his interesting and valuable paper.

The President introduced Mr. Norman Macbeth, of Philadelphia, who read a paper on

ILLUMINATING ENGINEERING PROBLEMS WITH GAS.

[For the text of the Macbeth paper, see JOURNAL, Oct. 11, page 860.]

Discussion.

The President—This very interesting paper is before you for discussion. Really it is a paper that does not permit much discussion, but some attention in that line should be brought out so that its text could be impressed as to its salient points on the minds of the members, not only as to the possibility of getting new business, but of holding that which they have. Will Mr. Knowlson speak to the question?

Mr. Knowlson—I have listened with much interest and close attention to this paper, and I have learned a great deal from it. It would be useless for me to attempt to add anything to it. I am happy to have had an opportunity to hear it.

Mr. Knight—"Illuminating Engineering" is important and interesting; but I think it should come under the pure food act, or, if possible, that we could get it unadulterated. I do not believe a discussion from me would be as appropriate here as in "The Gas Arc," which is a publication some of you may know about. I think Mr. Macbeth ought to have told us something about where this Reflex lamp can be obtained. That is all I care to say about it.

Mr. Chamberlain—I do not feel competent to discuss this paper. I do think there is much good in it that we can use in a practical way. In fact, it is a paper such as we, who have been brought up in the engineering end of the gas business, have had no training along this line. It is very helpful to chaps like me.

The Secretary—The rules brought out on page 2 are well worthy of study by every gas man, and the less he knows about the gas light business the more he should study them. One feature is shown that will help every man who is selling illumination. In trying to get business the first thing we have to do is to make some figures, and make them quick, and Mr. Macbeth gives us the way to compile some exact figures that will be very interesting to our consumers. Having a store in front of us, knowing the units we will have to use, we can tell the storekeeper what the cost will be to light his premises. These rules given by Mr. Macbeth are like those rules that are put before a bridge whist player. Every man who plays bridge has at least some good rules, and perhaps the more rules he has the better bridge player he is; but when he knows how to break rules then he commences to win games. In illuminating engineering it is his ability to know when to break the rules that secures business. In fact, that is nothing more than exercising common sense, and, as in other things, we must also use common sense in placing our light. The balcony spoken of might have been a foot higher or lower, which would change your calculations. On page 6 the same thing would apply, in that, if figured according to his rule, he would use 126 feet of gas, but he would actually require 189. I have looked over this hastily, and would not want to have that taken as fact; but such is my quick figure. As to the candle feet required in any given place, I am inclined to believe we can better err by giving too little light than too much. I think small units in many places will give the best results. Coming to practical installations that you could maintain and give a man the best service, although figuring might call for small units, you might have to go back to large ones. On page 14 I would suggest that the lamps should be 7 feet 6 inches high rather than 6 feet. Possibly the 6-foot height would give better results from an illuminating standpoint, but the consumer might get hot in his head instead of having cold in his feet. As to the tungsten cutting down the cost of lighting in stores, I have in mind many of the larger installations in Detroit, where the electric arc has been replaced by tungstens, and the demand has only been cut from 550 units to 400. It has been said of the tungsten that it does not deteriorate perceptibly in candle power by long use. It goes out; but if you go into stores, almost anywhere where tungstens are used, you will find some types of that lamp. On page 16, in regard to the cost of maintenance, I think the cost thereof is sometimes entirely controlled by the breakage that takes place.

While a man is taking care of a lamp someone may knock against his ladder just at the wrong time, or a blast of wind, or some other little thing will happen that will break the mantle. On the same page the figure for current cost as used is 5 to 3 to 2½ cents, and I think, for our city at least, that figure can be put as low as 1 cent, which means considerably more of a drop. On the last page the author writes about the cost of wiring, and I think in very many places that are to-day using electricity their books have no right to look the way they do if we simply take into consideration the cost of installation in comparison with the installation of gas, cost of operation and cost of maintenance, plus the insurance they probably have to pay on their plant. I have in mind plants in Detroit where I told them we could give them $6,000 worth of illumination a year before it commenced to cost them anything; and although it was possibly a bold statement, they are commencing to believe it. All over the country there are many places where we can do that which we are simply ignoring now.

Mr. Schwarm—On page 3, where the author speaks of lighting and power, I would like to know the price of electricity, also what system of electricity the gas lighting system deposed. I would also like to know about the price to the shoe stores in the same connection.

Mr. Graves—In speaking of the theater, Mr. Macbeth referred to Reflex burners being 18 feet from the floor. This undoubtedly is a spectacular place, and you are well acquainted with how hard it is to convince a man that gas can be turned off from a number of burners at the same time at one place. What did Mr. Macbeth do to take care of this argument?

Mr. Macbeth—Mr. Knight made a very good point regarding the pure food classification of gas. This is a point on which I have been hammering for some time, and one which will give us all a great deal of bother until the time comes when gas lamps can be standardized approximately to a certain size of mantle and rate of consumption. With electric lamps you can give tables showing this is true for carbon filament or arc lamps, because they have all been standardized. Unfortunately trade must to a certain extent be brought into the paper because our time is devoted to investigating certain classes of installations in which that lamp is installed. The American Gas Institute could not do better work than to take up this question of standardization. In 1892 electric lamps were standardized and put on a 16-candle power basis, which simplified things and straightened them out. In England, where electric lamps are not standardized, you can get carbon filament lamps all the way up to 24-candle power and higher to use any amount of current. I have tried to the best of my ability to keep all trade questions out of this paper and table, and in only one particular is trade stuff mentioned; that is where it comes in on the question of prismatic reflectors, a particular reflector made for a certain predetermined result, and to give figures which are at all valuable for purposes of comparison, this was necessary. Mr. Ewing brought out the case of the tables on page 2 and about being able to break the rules. That is largely true. He brought out the question of common sense. I do not think anyone was ever born with common sense, that being rather the result of observation, experience and education. It is a classification of your experience. We are not born with it. Tables are not always infallible. We should not sew up to them, but they are better than no figures. Tables do not always work just so in illuminating questions. In *Engineering News* the calculations for safety appliances upon which our lives depend here on this boat, on engine and high pressure tanks, and used by the engineers were in error to the extent of 300 per cent. Illumination is not as bad as that and our lives do not depend upon it. The question of large or small units can be easily taken up. It must be worked out from the standpoint of the installation that the consumer wants. In many cases you may have to meet the consumer's wishes and put in an installation which suits him rather than one that conforms to the ideas of illuminating engineering. Mr. Ewing suggested a change in the height of the lamp from 6 feet to 7 feet 6 inches. The height as given in my paper was from above the plane, not above the floor. If you want the illumination on the table, which is 2 feet 6 inches high, the lamp would be 8 feet 6 inches from the floor. In the same way it is seldom you find a ceiling where you can get that height. The question of red tungsten lamps, where they say the lamps do not depreciate in candle power. This statement is always qualified by saying "good lamps." A good lamp is not supposed to blacken, and I have seen a few that do not blacken. It is not caused by conditions similar to the carbon filament lamps. The blackening in the tungsten comes from imperfect exhaustion and from the oxides in the tungsten not being reduced before the lamp is made up. Mr. Schwarm asked about the cost of gas on replacement. On this particular installation it was 90 cents. I am not certain about the cost of the current in that town. Each instance I believe concerned carbon filament lamps. That brings out the point I tried to get at before that it is not the efficiency of the lamp which counts, but the total net efficiency of your installation. Mr. Graves asked about the system of control. These particular lamps have a cock and stem, with a chain. These were gauged together and one chain was brought from that with a ring on it, then they used to take a pole with a hook on its end to lasso the ring and pull it on or off. I might say in closing that the tables are often worked out on the basis of what we think they would do rather than on the basis of an actual installation. With an illuminometer, take these installations, measure them and determine what they are doing. Sometimes we put on a special test meter to check up the two consumptions of gas rather than to depend on a possibly slow meter.

On motion of Mr. Douglas a vote of thanks was extended to Mr. Macbeth for his most interesting and useful paper.

On motion the meeting adjourned, to reconvene the following day.

THIRD DAY—FOURTH SESSION.

The President called for the

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS,

which was read by Mr. Howard Olds, as follows:

The first thought of this Committee was to make a report in the same unique manner as the President used in delivering it, but upon reading it we find so many things that we fully agree with him that we strongly recommend to the Associati on that this address be carefully read. We note with interest the President's discussion on Public Service Commissions and agree with him that, the personnel of a commission should be high and th e power confined to that of regulation and not to management.

We also recommend that the part of the address, on "Our relation to the public" be carefully considered by everyone in charge of gas companies.

HOWARD OLDS,
V. F. DEWEY,
H. W. DOUGLAS,
} Committee.

On motion of Mr. Butterworth the report of the Committee was ordered adopted and placed.

REPORT OF COMMITTEE ON RESOLUTIONS.

The President—I will ask Mr. Butterworth, Chairman of the Committee on Resolutions, to present the report.

Mr. Butterworth said, as a prefix to the report, "We have included in our report proper resolutions pertaining to the demise of three of our members during the past," and then continued:

Your Committee appointed to draft appropriate resolutions expressing, so far as possible, the sentiments of our Association, with respect to the loss which we have sustained by the death of three of our members during the past year, respectively, Mr. Chas. H. Jacobs, of Detroit, Mr. T. Charles Amsden, of Dowagiac, Mich., and Mr. Fred. R. Persons, of Toledo, O.

Resolved, That while Messrs. Chas. H. Jacobs and T. Charles Amsden were members of our Association, whose interests did not call them into active or prominent participation in its work, yet we recognize that they were useful to our organization and worthy citizens of their respective communities, and as such are entitled to more than a passing remembrance from us.

Resolved, further, That, in the lamented death of Fred. R. Persons, we have sustained a loss, both as an Association and as individuals, that is great and irreparable, and that we find ourselves unable adequately to express in words our sense of this loss and the feeling of respect, admiration and love, which we now have, and always shall have, for him. He was the embodiment of kindness and of good fellowship, and unselfish and self-sacrificing to a superlative degree in his helpfulness towards others. As our President has well said, his life was governed by the Golden Rule. No member could have been taken from us who would be more missed by us, both at the time of our annual convention and in our professional intercourse throughout this year.

Resolved, further, That we tender to his widow and family an assurance of our profound sympathy in this bereavement, and that a copy of that part of these resolutions pertaining to him be presented to them in our behalf by our Secretary.

IRVIN BUTTERWORTH,
HENRY W. DOUGLAS,
JOHN J. KNIGHT.
} Committee.

On motion of Mr. Douglas the report was adopted and ordered placed on file.

Mr. Douglas—As a member of the Committee on Resolutions, I want to offer another resolution, which is that the officers of the Association, and the committees who have had this trip in charge, be notified of our appreciation of the success of their efforts. Everybody here will admit it is the best and most successful meeting we have ever had, and that success is largely due to those who have had it in charge, and also to the persistency with which Mr. Knight and the late Mr. Fred. R. Persons stuck to the thought of taking a trip of this nature. They advocated the idea a long time and it is largely due to their efforts that we have made it.

Mr. Butterworth—I would like to amend that motion to include an expression of our appreciation to Mr. Bigelow for the help he has given us in publishing the "Daily Journal," etc. [Amendment accepted.]

The President—We are indebted to Mr. Ewing more than to any other man for the success of this meeting. Mr. Ewing has done all the work and has been the wheel horse and the off horse as well. He has never lagged for one minute. It is to his efforts that this Association is indebted for this pleasant trip. [Amendment and original motion were unanimously carried.]

Supplemental Report, Executive Committee.

The Secretary read a supplemental report from the Executive Committee, as follows:

New Members.

Your Committee begs leave to report its indorsement of the following applications for membership:

Adams, L. G., Flint (Mich.) Gas Co.
Asendorf, C. F., Maryland Meter Co., Chicago, Ills.
Brown, H. S., 7 Wall street, New York city.
Barnes, H. E, St. Louis, Mo.
Bigelow, L. S., Willimantic, Conn.
Caliborn, C. H., Buffalo, N. Y.
Dickey, E. S., Maryland Meter Co., Baltimore, Md.
Dunkley, W. A., Lansing, Mich.
Elston, I. C., Delray, Mich.
Goodale, J. C., Kalamazoo, Mich.
Hopkins, E. H., Cleveland, O.
Leonard, L. A., Belding (Mich.) Gas Works.
McCallum, J. N. Delray, Mich.
Macbeth, N., Gloucester City, N.J.
McCorkindale, W. J., Ishpeming, Mich.
Mason, A., Gloucester City, N. J.
Tippy, F. A., Monroe, Mich.
Wardell, C. W., Gloucester City, N. J.
Young, N. A., Boliver, Pa.

The following resignations have been received.

Resigned.

Baldwin, W. S.	Kinder, C. E.	Stratton, S. S.
Coomes, W. A.	Lynch, G. W.	Stewart, H. G.
Dwyer, F. T.	Mershon, C. E.	Stirling, J. C.
Fyfe, A.	Morton, H. E.	West, R. B.
Fricke, C. H.	Peters, J. B.	Wallace, H. N.
Harling, A. E.	Snow, N. W.	Young, P.

The President—You have heard the report of the Executive Committee on members resigned and new members. What is your pleasure?

On motion of Mr. Douglas the resignations were accepted and the Secretary was instructed to cast the ballot of the Association for those proposed for new membership. [Seconded and carried.]

The Secretary—I take pleasure in casting the vote of the Association for the entire list of members whose names appear in the report and declare them elected to membership in the Association.

The President—Mr. Douglas will give us the

Report from the Fellowship Committee.

Mr. Douglas—The Scholarship Committee held its meeting yesterday morning to consider plans for work for the coming year. We deem it advisable that work on the same general lines shown by the report be continued. Those of you who have visited the experimental plant will appreciate that the quarters have been very cramped. At the time it was built there was no more room available for building, but arrangements have been concluded now so that added space can be had. It is very desirable to increase the size of the plant and to make some other minor changes which we hope will obviate the difficulties met during the last year, principally in the regulation of the exhauster. We are glad to report that we are promised a hydraulic regulator which will probably control these difficulties, and a motor to operate the present exhauster. We recommend that an effort be made during the coming year to arrange by some means or other for $1,000 additional to put into these extensions of building and some other necessary apparatus. I herewith hand the Secretary's report of the financial statement of last year:

Financial Statement of the Michigan Gas Association Scholarship Fund, for Year Ending June 1st, 1909.

July 1st, 1908, cash on hand	$3.11
Contributions	777.50
Income from interest during the year	2.10
	$782.71
Salary holder of fellowship	500.00
New permanent equipment	96.66
Maintenance and operation	175.37
Insurance	10.50
	$782.15
Balance on hand, June 30, 1909	0.18

The President—You have heard the report. What is your pleasure?

On motion of Mr. Frazer the report was received and placed on file.

Committee on Affiliation.

The President—Before the Committee on Place of Next Meeting makes its report, I would like to appoint a Committee on Affiliation. The American Gas Institute communicated with me several times during the past year, wanting to know if I could not use my influence to have the Michigan Gas Association affiliate with the American Gas Institute. Heretofore we have held off on account of our research work. Their Constitution was such that they dictated the research work of all affiliated associations, but we thought we had progressed far enough in our research work to dictate our own terms and did not want to be interfered with by the Institute. I believe at the next meeting they will amend their Constitution to obviate that difficulty, and, if there is no objection, I will appoint, as the Committee on Affiliation, Messrs. Douglas, Olds and Dewey.

The President asked Mr. Eaton to present the

Report of Committee on Next Place of Meeting,

which that gentleman did as follows:

Your Committee on Next Place of Meeting found, upon inquiries from many of the members, various expressions in regard to just where the meeting should be held. Many wish for another boat trip, some to hold the meeting in future at one place, as Detroit, and yet others were in favor of continuing the meetings from town-to-town, with a boat trip once in 3 years.

Inasmuch as we think that each and everyone should help decide the question, on account of the various opinions, we do not desire to make the final decision. Therefore, to bring the question up before the meeting, we recommend that the next place of meeting be held at Bay City, this being the only town that has expressed a desire for the honor.

H. M. Eaton,
Carrol Collins, } Committee.

The President—Before putting the question of adoption I would like to call for some remarks.

Mr. Tippy—Personally I prefer a boat trip. I have not grown tired of this kind of a trip yet, and think we can find many places to go; for instance, the Thousand Islands, or a trip to the Georgian Bay district, would be pleasurable, where we could have a day's fishing, etc. I think an interesting proposition could be arranged in that regard. In order to put the matter before the meeting I will ask to amend the report of the Committee by declaring that the meeting be held on board a boat going to the Georgian Bay district.

Mr. Douglas—While I favor a boat trip, I do not think we should confine ourselves to a specific place until we find whether it is possible to go there or not. I move to amend Mr. Tippy's amendment, striking out the clause referring to Georgian Bay.

The President—You have heard the amendment to the amendment. All in favor say "Aye." [The amendment to the amendment was adopted.] All in favor of Mr. Tippy's amendment as amended say "Aye." [The amendment as amended was carried.]

Mr. Ewing—Before the Association commits itself to a boat trip we should have a written vote that constitutes a note, so that members who really want to go shall go. We are enthusiastic over a boat trip at this time, but a little later, when the boat is starting, you will wire that you cannot come. I think the matter should be left in the hands of the Executive Committee to see what shall be done.

Mr. Blauvelt—I move a reconsideration of the whole subject, and ask that it be referred to the Executive Committee, so they can arrange for a boat trip if they get assurances from a sufficient number. If not that the meeting he held as according to the report of the Committee on Place of Next Meeting. [Carried.] I now move that

this whole matter be placed in the hands of the Executive Committee with power to arrange for a boat trip, otherwise that the meeting be held at Bay City. [Carried.]

The President—We will now vote on the report of the committee as amended. [The report of the committee, as amended by Mr. Blauvelt's motion, was carried.]

The President called for the

REPORT OF THE NOMINATING COMMITTEE,

which was read by Mr. Blowers, as follows:

Your Committee begs to submit the names of the following gentlemen to the consideration of the convention as officers for the ensuing year:

For President—Mr. B. O. Tippy, Grand Rapids, Mich.

For Vice-President—Mr. Alonzo P. Ewing, Detroit, Mich.

For Secretary and Treasurer—Mr. Glenn R. Chamberlain, Grand Rapids, Mich.

F. W. BLOWERS,
W. H. FROST,
W. W. JOHNSON,
} Committee.

On motion of Mr. Eaton the report of the Nominating Committee was adopted.

ELECTION OF OFFICERS.

It was moved by Mr. Roper that the Secretary be authorized to cast the ballot of the Association for the officers as named in the report. The motion was carried, the Secretary cast the ballot accordingly, and the officers were declared elected.

SOME RESPONSES.

The President—As Mr. Tippy has been elected President, I will call upon him for a speech.

Mr. Tippy—It certainly is a very great honor to be elected your presiding officer. This Association has a long record of work done, and I thank you for having conferred this honor upon me. This present meeting has set a new high water mark in the class of papers read, and the entertainment features as well, and I trust this will spur us on to renewed efforts in the future. I ask your assistance, and I am sure I will have it.

The President—Mr. Ewing has been elected Vice-President. We would like to hear from him.

Mr. Ewing—Mr. President and members of the Michigan Gas Association: I do not think I have words to express my appreciation of the honor of being elected Vice-President of your Association, but I do want to say that in the 5 years I have been actively connected with the body, I have thoroughly enjoyed the association of the members and I have enjoyed the work I have had to do, and this was entirely unexpected at this time. I assure you I more than appreciate it, and will try to continue such work as I can do to make our meetings profitable as well as pleasurable.

The President—Mr. Chamberlain is our new Secretary. May we hear from him?

Mr. Chamberlain—I wish to thank you sincerely for this honor. It is a big honor to take up a job of this kind. I appreciate how important it is and how difficult it will be to follow in the footsteps of a man like Mr. Ewing. If I can handle it half as well as he did I will personally be very much pleased with myself. I thank you.

ADJOURNED.

The President—A motion to adjourn will be in order, but before we do adjourn I want to take this occasion to thank every member of the M. G. A., and especially the ones who read papers and our worthy Secretary, who is really the power behind the throne, and the throne itself in carrying out this meeting, not only in regard to the boat excursion, but in regard to the papers. And if there is any further credit due to any person, that credit is due to Mr. Ewing. I want to thank you one and all for the very pleasant time we have had together, myself especially, and I hope the M. G. A. will continue to prosper and grow as time goes on.

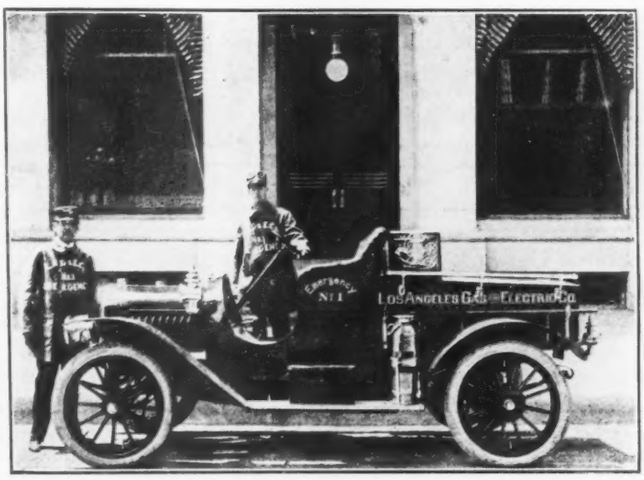
Upon motion by Mr. Butterworth the meeting was declared adjourned.

The Emergency Service of the Los Angeles Gas and Electric Corporation.

[A paper read by MR. C. S. VANCE, Pacific Coast Gas Association, September, 1909.]

One of the most serious, as well as difficult, problems confronting gas companies operating in large cities to-day is the necessity for rapid and efficient handling of emergency work. It is of the utmost importance that a complaint of leaking gas be responded to with all possible speed, for what may at one moment be merely a serious leak and easily remedied if attended to in time, may become a disastrous explosion within the instant. On the one hand is a condition which, if promptly rectified, is without serious result, while on the other, even a slight delay might result in damage to property or even loss of life, the extent of which may not be estimated.

The practical efficiency of the emergency department is, therefore, largely determined by the promptness with which it responds to the call. With this in view, the writer was early attracted by the advantages of the automobile for such service on account of its speed and equipment carrying capacity, and June 13, 1908, a regular five passenger, 30-horse power touring car was adapted to the purpose by removing the tonneau and constructing in its place, as a component part of the body of the machine, an oblong box with hinged lids opening upward from either side. Within this compartment is arranged for immediate use the following equipment: One 10-inch Trimo wrench, two 14-inch Trimo wrenches, one 18-inch Trimo wrench, one 24-inch Trimo wrench, 1 pair pipe cutters, 1 pair 10-inch gas pliers, 1 cold chisel, 1 claw hammer, one 2 pound calking hammer, 1 set calking tools, 1 hacksaw, 1 monkey wrench, one 8-inch screw driver, 1 crow bar, 1 axe, 2 picks, 2 shovels, 1 handsaw, 1 pair easy bolt cutters, one 100 foot rope, 1 hand line, 2 tackle lines, 2 pair climbers, 2 belts, 2 pair rubber gloves, 2 pair connectors, 1 pair lineman's pliers, 1 lineman knife, 1 smoke jacket, 1 anti-asphyxiator, 1 medical case, one 3-gallon fire extinguisher, 1 oxygen tank charged with 50 gallons of oxygen, two 5 foot ladders, extension. A regular inspection of the tools and appliances is made to see that they are in serviceable condition and to prevent any depletion of the equipment.



Emergency Automobile, Los Angeles Gas and Electric Corporation.

The regular station of the automobile is in the rear of the main office building, in the business section of the city, and a crew of four uniformed men are on duty at all hours of the day and night, Sundays and holidays included, to respond to emergency calls. Except in unusual cases a call is responded to by only two men, one of whom acts as chauffeur, both of whom are men of experience and training in this class of work.

Practically all of the calls come through the medium of the telephone and are received by what is known as the investigation department. In this department only the most reliable and accurate men are employed, experience having shown that carelessness in the receipt and recording of such information is fraught with great danger. They are especially drilled in the importance of securing full details as to the nature of the trouble, its location, etc. For this purpose a special form of order, printed in red, is used in the case of gas leaks, and all employees have the most positive instructions to give such orders precedence over all other work. These orders provide for the name and address of the consumer or party reporting the leak, location of leak, time received by the investigation department, the time of delivery to the emergency men and the time of their arrival at and departure from the place of trouble.

Immediately upon receipt of complaint of leaking gas, the telephone operator calls the emergency crew into action by means of an electric signal, and by the time the order is written the automobile is cranked and ready for the start. This has been accomplished within one minute from the time telephonic communication is established between the office and the party reporting the leak. By test calls the automobile has, within 5 minutes from the time of notification at the office, covered a distance of over 2 miles.

Arriving at the site of the trouble, the man in charge of the crew

locates the party telephoning the complaint and ascertains the cause. If it is from leaky fixtures or appliances the necessary remedy is quickly applied and the crew returns to the station, first communicating with the office by telephone to ascertain if any more emergency orders have been received.

If the call should be at night, however, and the trouble found to be too serious for the regular crew to rectify, the driver of the car, who is furnished with a book containing the names of the corporation's employees, quickly collects additional help from among those residing in the vicinity.

Two motorcycles, equipped with kits of tools, are held in reserve at the emergency station for use in the event of a serious leak call coming in while the auto is out. Should the car be out of commission for any length of time, one of the corporation's several passenger automobiles is called in temporarily for the emergency service.

In addition to leak, accident and other calls of a serious nature, the automobile responds to all fires within a radius of 2½ miles, and elsewhere throughout the city in case of a general alarm.

This service is a valuable adjunct to the city fire department in promptly shutting off the gas supply in burning buildings and cutting live electric wires that so frequently menace the lives of firemen. In many instances the emergency automobile has arrived at fires in advance of the fire apparatus, and several cases are recorded where the crew has extinguished fires before the arrival of the fire department.

In recognition of the value of this apparatus to the public, the Los Angeles City Council, in a traffic ordinance recently enacted, gives it the same exemption from speed limitations as allowed fire and police patrol apparatus.

Gas asphyxiation is another field of utility for the automobile emergency service. In several instances life has been saved through the prompt administration of the oxygen carried as part of the car's regular equipment. This feature is of great value to the corporation's own employees, since it is no uncommon occurence for men to be overcome by gas in street main construction work at remote locations where medical attention is not readily obtainable.

A complete book record is keep of every call responded to by the automobile, with a description of the nature of the trouble and the remedy applied. Since the date of its installation to the corresponding period of this year, the emergency automobile has responded to 1,092 calls. 868 of which were gas leaks, segregated as follows: 32 broken services under houses, account moving same, etc.; 11 broken services in streets, account grading; 61 broken fixtures in houses, caused by moving furniture, etc.; 754 leaks at meters, connections, stoves, heaters, etc.; 150 fire calls; 34 electric calls on account of poles on fire, wires down, etc. During this period a total of 4,169 miles was run, with a consumption of 514 gallons of gasoline.

Not only have the corporation's interests been safeguarded by this service, but the protection which it affords to the public is of inestimable value, providing, as it does, a means of promptly rectifying at any hour, defects in or disarrangements of the consumer's house piping, over which gas companies do not ordinarily exercise control. This is amply demonstrated by the fact that since its inauguration not one serious case of explosion due to illuminating gas has occurred within the great area with its 350,000 inhabitants supplied by this corporation.

The Boston Consolidated Gas Company's Exhibit at the Boston Food Fair.

The most conspicuous feature of the Food Fair that had been attracting much attention in the Massachusetts metropolis for weeks was the exhibit on the stage in the main hall erected at the instance of the Boston Consolidated Gas Company, a good idea of which display can be gained from a look on the accompanying illustrations.

Beneath a canopy of orange bunting, and brilliantly illuminated by a high pressure gas lamp of several thousand candle power, hung high in the air, stretches a white colonnade, shown in Fig. 1, surmounted with illuminated globes. There is a booth at either end, and in the center of this a colonnade, and the whole is brilliantly, yet softly, illuminated by powerful Humphrey inverted gas arcs.

Probably the most interesting feature of the exhibit is the model suite of rooms which fills the back part of the stage. Here is shown a modern kitchen completely equipped with gas appliances, with gas range, gas water heater, gas steam radiator and gas lights.

The dining room (Fig. 2) finished in Flemish oak and leather wall

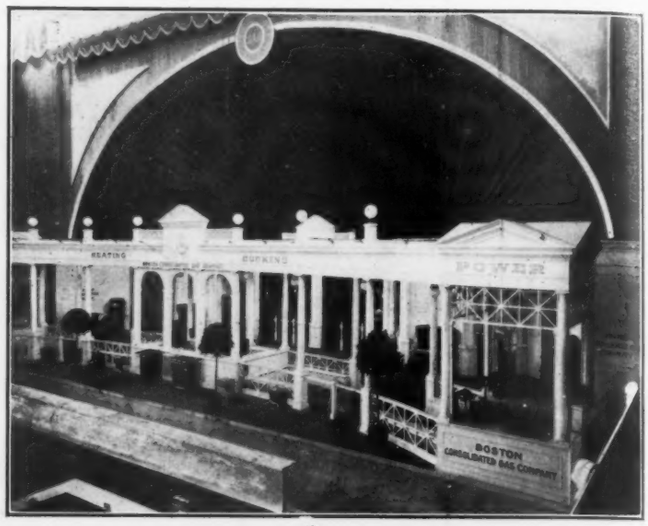


Fig. 1.

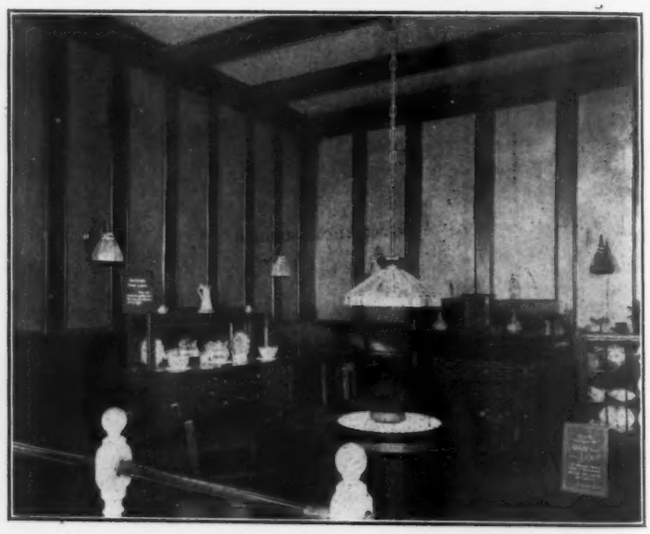


Fig. 2.

covering, is fitted out with a dome light of art glass over the table and inverted bracket lights around the walls. In the fire-place a gas log sheds a cheerful and natural warmth throughout the room.

The library is finished in mahogany and leather, lighted throughout with the latest Bijou inverted chandelier and bracket lights, each consuming only 1 cubic foot of gas per hour, and giving forth 25 or

Fig. 3.

more candle power. Here again the gas log proves indispensable, and the familiar desk light, supplied with gas from an opening in the wainscoting of the wall, gives the finishing touch of comfort and convenience.

The bedroom (Fig. 3) finished in blue and white, is particularly pleasing, and is lighted with upright and inverted mantle lights.

Fixtures for household and business use are shown in the booths and corners of the exhibits, so that the whole certainly appeals very strongly to the home builder or business man who wishes to practically take up the latest improvements and thus keep abreast of the times.

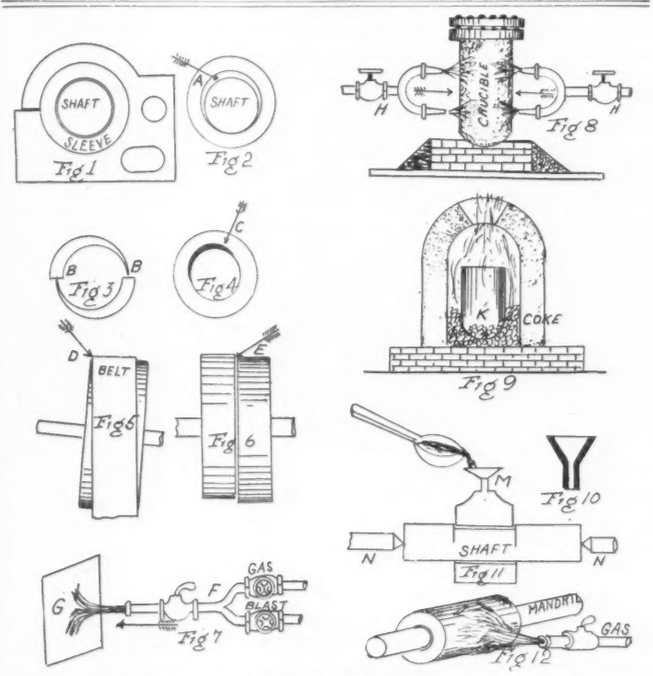
Gas in the Babbit Metal Work.

[Communicated by "R."]

I find it much more convenient to use gas in heating babbit metal than the ordinary fire, for one finds in babbit metal a useful agent in process of melting on fires made with charcoal on forges, coke in crucible devices, oil frames in retorts, and in various other ways. There are babbit metal melting contrivances in service which are heated by electricity. Again, we find them in use with acetylene flames. Common gas jets have been used, with blasts, to good advantage in this line of work. As the gas can be drawn from the shop or house pipes direct, and intermingled with the air blasts in the melting apparatus, the process becomes exceedingly simple, in that it avoids fixing up a lot of mechanical apparatus, as is the case with electrically heated babbit metal affairs.

Let us, first, observe some of the uses for which the melted material is noted. Babbit metal, in its cold state, in the form of bars, cannot be utilized in many ways; but as soon as you melt the stuff, you reduce it to a composition which can be employed in very many different directions in shops and mills. You can use it for the making of sleeves for bearings, calking up worn places, loading grooves and depressions in gas engine cylinders, packing working places in gas piston connections, repairing bearings of all kinds, and kindred work. It is probable that the use of the metal is greatest in the repair line, in the restoring of sleeves for worn journals of gas engines and related devices. The bearing in its original state is quite perfect in every detail. A drawing of one of these journals in perfect condition is shown in Fig. 1. After a certain period of wear-and-tear, perhaps the bearings loosen up and the shaft will rattle and run unevenly; or, perhaps the sleeve metal wears down a trifle; or maybe the shaft itself will lose some of its surfacing and reduce things to the order exhibited in Fig. 2, where may be seen a vacancy produced by the loss of metal at that juncture. It is not practicable to cast aside the journal or the shaft, therefore, steps are taken to rebuild the portion which has been worn off. This process involves the employment of babbit metal. As above stated, the metal may be reduced to a flowing state, by heating in a crucible or ladle over any sort of a fire. Coal, oil, electrical jets, acetylene projections, etc., may be employed; but the charcoal, coke, coal, gas, etc., must be correctly applied in order to properly derive an effective heating state for the metal. The object is to rebuild the sleeve work to its original shape. You will find the sleeves worn down to the half-moon order, in some instances, as represented in Fig, 3, with the edges butting at *B*, *B*, a most imperfect condition for smooth work. Now and then we find that some tinker seeks to overcome the defect in the worn sleeve by inserting a piece of curved metal, as at *c*, Fig. 4. This is most objectionable, for the piece tapers, works around and acts like a frictional brake on the turning shaft. Then, again, we find a case for babbit-metalling a journal in the tilted pulley and shaft, as represented in Fig. 5. As soon as one of the side journals begins to wear off in the sleeve, that side is sure to fall more or less out of the alignment. The alignment is frequently disturbed to the extent exhibited in the cut. The belt will seek the highest point on the wheel, and consequently run over on the rim, as at *D*, cutting and wearing the leather, finally destroying it. Or perhaps a tight wheel and a loose wheel are running together on a shaft. One of the wheels (the loose one) being always in motion, soon cuts into the shaft, providing that the surfaces generating the friction are permitted to run dry. Sometimes the sleeve or the hub of the wheel itself wears down, instead of the shaft, and then the wheel drops a little, making the unequal riding surface for the belt, as at *E*, Fig. 6, and we have another case for babbitting a journal. Let us proceed with the actual work of application of the metal. Fig. 7 is a sketching of one type of gas heating contrivance available for this service. The gas is carried from the main through the pipe designated at the upper side, and the air blast is taken from a motor fan or other means of producing pressure. The two combine in the jet, at *F*, where the gas is ignited and the flame produced, as at *G*. This flame may be directed against any desired object. There may be two jets arranged, as in Fig. 8, and the flames discharged against the sides of a crucible containing the babbit metal. The plan is designated at *H*, *H*, with the crucible adjusted in the center on a masonry base. Often the crucible is placed on a sheet metal device, and the flames are arranged so as to shoot against the base of the same and heat the metal. Then arrangements are made in some systems by which the melting device is entirely inclosed in a brick or stone chamber, as illustrated in Fig. 9. I noticed one of these devices put up for the purpose of consuming coke. The crucible is set up in the center, as marked at *K*; the inclosed method makes it possible to retain the heat to better advantage. With the inclosed plan, brass and some of the hard metal can be melted if desired.

The melting of the material is followed by the processes of pouring. You will require one or more strong metal tunnels, of the description exhibited in Fig. 10. A good way to pour the metal, which you have dissolved by using gas or other heating measures, is shown in Fig. 11, in which the worn shaft is shown. The constant revolutions of the shaft have caused the shaft to become worn where the



sleeves of the box bind. In order to restore the worn portion to the former condition, the shaft should be properly aligned in the middle of the journal end; a good way to do this is to use the two points, *N*, *N*, in a turning lathe. This assures you a common center. The shaft is held securely in the proper position. Now, then, you should bolster up the box. This can be done with a little bracing with sticks or slabs. Get the combination so that it centers right, then put some clay on the edges of the box, so as to close tightly the air spaces between the sleeves and the shaft. When all is properly lined up, you can pour your metal from a ladle through a tunnel, as at *M*. You will almost always find an oil-hole or other opening through which the pouring may be done. If none exists you will have to drill a pouring hole.

Sometimes a mandrill is needed in a combinati n similar to that shown in Fig. 12. Mandrills are convenient things to have about the shop when you have some babbiting to do. In fact, some of the workmen put in a little chest of steel mandrill to use when recasting worn boxes. It is wise to have a selection ranging from ¼-inch bore to the 2-inch bore. Sizes may vary ¼ inch. The babbit metal is obtainable at all dealers in metals.

THE Xenia (O.) Gas and Electric Company, and the Xenia Lighting Company, have filed a certificate of consolidation under the title of Xenia Gas and Electric Company.

The South Metropolitan Gas Company Working Full Horizontals.

The *Gas World* for October 16th had this to say: A few days ago we were authoritatively informed that the South Metropolitan Gas Company had placed an order with Sir William Arrol & Co., Ltd., Glasgow, for the construction and delivery of 10 Arrol-Foulis charging machines and 8 Hunter-Barnett coke discharging machines. All the coke pushers and 8 of the charging machines are destined for use at the East Greenwich works of the Company, and 2 charging machines are to go to the Vauxhall works. When delivery of this order has been made at East Greenwich, the 4 retort houses in work there, containing an aggregate of 1,800 through retorts, will be worked by Arrol-Foulis charging machines and Hunter-Barnett discharging machines.

In view of the magnitude of this order, perhaps the largest single order ever given for machinery for a gas works, a representative of the *Gas World* called on Mr. Charles Carpenter, Chairman of the South Metropolitan Gas Company, the morning of the 12th, to ascertain what it all means. Mr. Carpenter was candor itself. "We have all been carbonizing coal in the wrong way," he said. "We have now found it out, and we are going to do better in the future." Coming to more detail, Mr. Carpenter explained that the lines upon which the South Metropolitan Gas Company's carbonizing methods were now proceeding were heavy charges of long duration, by which. they had found from experience, they obtained a larger yield of gas, a better tar, a greater yield of ammonia, and less friable coke. The Company has been working on these lines at Old Kent Road since the spring of this year, and the results obtained there have so satisfied Mr. Carpenter that the same method is to be adopted at the Company's other 5 manufacturing stations, East Greenwich and Vauxhall, as has been indicated, being the first to be adapted to the new plan of working. At Old Kent Road, where the full-retort plan has been in use since March, the retorts are 20 feet long and 21 inches by 15 inches cross section, heated by outside producers. Into these retorts charges of 12 cwts. of coal are put, and the carbonizing period has been lengthened to 12 hours, as against the former practice of 7½ cwt. charges carbonized for 6 hours. Using similar coal to that previously used, yields of between 12,500 and 13,000 cubic feet per ton of coal are being regularly obtained, as against something under 11,000 cubic feet under the previous practice. The illuminating power generally runs to about 15 candles, tested by the Metropolitan No. 2 burner, but it frequently goes over 17 candles, as is shown by the official reports of the London County Council. As has been stated, the tar is thinner, there is more ammonia and better coke, and, in addition to all this, the sulphur in the gas is less, and the naphthaline is, as Mr. Carpenter put it, practically *non est*, while stopped ascension pipes have become a vague recollection. From what has been said, it will be evident that carbonizing costs must be considerably reduced under the new system, but, for the present, at all events, Mr. Carpenter prefers not to put a figure upon this saving. It is also expected that the maintenance charges will be less, as, despite the fact that the yield of gas per ton is so largely increased, the heats in the settings are actually slightly lower than they were under the old system of light charges of short duration.

For the benefit of those personally unacquainted with the Arrol-Foulis charging machine, it may be said that this is worked by hydraulic power, and places the charge of coal in the retort by means of a sequence of strokes of the charging ram, each stroke being automatically reduced in length as the retort is filled up. From this it will be apparent that a retort can be given a smaller or larger charge at will, according as to whether the coal being carbonized expands or shrinks in the process. As a matter of experiment, at Old Kent Road retorts have been filled up to the crown by means of these Arrol-Foulis machines. Asked if there was any difficulty in pushing out the coke from these heavy charges, Mr. Carpenter assured the writer that the discharging process was carried out more easily than with the former light charges. The Hunter-Barnett coke pusher, it may be explained, is also an hydraulically operated machine, and has behind it a record of useful work done in the South Metropolitan gas works and elsewhere for 4 or 5 years. When the order in question has been completed, nearly all the coal carbonized by the Company will be handled by the hydraulic machinery described, the exception being a few hand-worked retorts at two of the older works, and the inclines at West Greenwich and Bankside. It is, however, the intention, in the near future, to reconstruct these latter as horizontals.

We understand that this new departure on the part of the South Metropolitan Gas Company has been taken after mature consideration by Mr. Carpenter of all the new methods of carbonization now claiming the attention of the gas engineer.

Book Reviews.

Audel's Gas Engine Manual.—New York. Theo. Audel & Co. 469 pages, 156 illustrations. Price $2.

The author has attempted to cover the vast field of gas engine theory, design and operation, and the subjects are necessarily treated shortly and concisely. They are handled from a broad standpoint and the book is written in a style understandable by laymen, which means that it would be a valuable book for students as well as a handy reference.

Gas Engine Theory and Design.—A. C. Mehrtens, M.E. John Wiley & Sons, New York. 256 pages, 241 figures. Price $2.50.

A welcome addition to the already long list of books on this subject, because the author has not attempted to go beyond his subject. His presentation of the theory of gas engines will undoubtedly be appreciated by many not members of his classes in Michigan Agricultural College, for whom the matter was originally prepared.

Public Lighting by Gas and Electricity.—Mr. W. J. Dibdin, F.I.C., F.C.S. The Sanitary Publishing Company, London; 538 pages, 155 illustrations. Price $8.

The book covers a broader field than the title would indicate, as a large portion of the field of gas and electrical engineering is covered. The chapters on photometry are the best, as might be expected of the author of "Practical Photometry." The subject of illumination is handled in a rather crude manner and the references are not of any too recent date; but so little has been written on the subject that this offering is welcome.

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 10 cents.

936,375. Sludge Faucet for Carbide Gas Generators. F. L. H. Sims, Toronto, Canada.

936,476. Incandescent Gas Lamp. A. Rector, New York. Assignor to Rector Gas Lamp Company.

936,501. Incandescent Gas Lamp. C. Wiederhold, Jersey City, N. J.

936,521. Lamp. M. I. Cohen, Chicago. Assignor to Economy Light Company.

936,636. Gas Producer. R. B. Kernochan, Pittsburgh, Pa.

936,721. Coupling for Gas Conduits. H. M. Holton, New York.

936,844. Plant for Heating Gas and Air for Combustion in Gas Furnaces. O. Zahn, Berlin, Germany.

937,002. Gas Burner. W. V. D. Kelley, Newark, N. J.

937,161. Illuminating Body. Otto Mannesmann, Remscheid-Bleidinghausen, Germany.

937,406. Gas tanks and distributing connections therefor. Frank W. Beardsley, New York city.

937,464. Apparatus for increasing gas pressure. Forest A. Ray, Boston, Mass., assignor to Standard Light Company, same place.

937,466. Revolving grate for gas producers. Hugo Rehmann, Mulheim-on-the-Ruhr, Germany.

937,483. Fastening device for incandescent bodies. Edmund Steil, Berlin, Germany, assignor to Berlin-Anhaltische Maschinenbau, Actiengesellschaft, same place.

937,687. Gas producer. Fritz Muller, Darmstadt, Germany.

Meeting Times of the Various Gas Associations.

American Gas Institute.—Annual meeting, October, 1910. Atlantic City, N. J. Officers: President, Wm. H. Bradley, N. Y., City; Secretary, A. B. Beadle, 29 West 39th street, N. Y. City.

Canadian Gas Association.—Annual meeting, June, 1909. Hamilton, Ont. Officers: President, J. S. Norris, Montreal, P. Q.; Secretary and Treasurer, A. W. Moore, Woodstock, Ont.

Empire State Gas and Electric Association.—Annual meeting, October 6 and 7, 1909, New York City. Officers: President, William T. Morris; Secretary, C. H. B. Chapin, 29 W. 39th street, New York City.

Guild of Gas Managers of New England.—Annual meeting, December. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, A. K. Quinn, Newport, R. I.; Secretary, Walter G. Africa, Manchester, N. H.

Illinois Gas Association.—Annual meeting, time, March 18, 1910, Chicago, Ills. Officers: President, E. G. Schmidt, Springfield, Ills.; Secretary-Treasurer, C. B. Strohn, Elgin, Ills.

Illuminating Engineering Society.—Annual meeting, January 14, 1910. Meetings of Sections, monthly. President, W. H. Gartley, Philadelphia, Pa.; Secretary, Preston S. Millar, 29 W. 39th street, N.Y. City Sections: New York: Secretary, Albert J. Marshall, 27 Fulton street. New England, Secretary, L. D. Gibbs, 39 Boylston street, Boston, Mass. Philadelphia, Secretary, G. R. Hemminger, Broad and Arch streets. Chicago, Secretary, G. H Jones, 139 Adams street.

Indiana Gas Association.—Annual meeting, January 19, 1910, Indianapolis, Ind. Officers: President, J. W. Dunbar, New Albany, Ind.; Secretary-Treasurer, Philmer Eves, Indianapolis Gas Company, Indianapolis, Ind.

Iowa District Gas Association.—Annual meeting, time, June 23, 24, 25, 1910, Sioux City, Ia. Officers: President, Geo. H. Waring, Omaha, Neb.; Secretary and Treasurer, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, time, ———— Wichita, Kas. Officers: President, W. A. Scothorn, Hutchinson, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association—Annual meeting, time, September, 1910; ———— Officers: President, B. O. Tippy, Grand Rapids, Mich.; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April 14, 15 and 16, 1910; Jefferson City, Mo. Officers: President, W. A. Bixby; Secretary and Treasurer, C. L. Clary, Sikeston, Mo.

National Commercial Gas Association.—Annual meeting, Dec. 14-22, 1909; New York, Officers: President, J. D. Shattuck, Chester, Pa.; Secretary-Treasurer, Lucius S. Bigelow, 106 Fulton street, New York City.

Natural Gas Association.—Annual meeting, May 17, 18 and 19, 1910; Oklahoma City, Okla. Officers: President, William H. McKenzie, Kansas City, Kas.; Secretary, T. C. Jones, Delaware, O.

New England Gas Association.—Annual meeting, third Wednesday in February; Boston. Officers: President, Walter G. Africa, Manchester, N. H.: Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

Oklahoma Electric Light, Railway and Gas Association.—Annual meeting, May 18, 19 and 20, 1910; Oklahoma City. Officers: President, F. H. Tidman, Oklahoma City, Okla.; Secretary-Treasurer, Galen Crow, Guthrie, Okla.

Pacific Coast Gas Association.—Annual meeting, ———— —, 1910, Los Angeles, Cal. Officers: President, W. B. Cline, Los Angeles, Cal.; Secretary-Treasurer, John A. Britton, 925 Franklin street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, April 13, 1910, Easton, Pa. Officers: President, E. G. Holzer, Easton, Pa.: Secretary-Treasurer, William H. Merritt, Lebanon, Pa.

Society of Gas Lighting.—Annual meeting, Dec. 9, 1909; monthly meeting, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary George G. Ramsdell, 1123 Broadway, New York.

Southern Gas Association.—Annual meeting, Feb. 16, 1910, Chattanooga, Tenn. Officers: President, R. C. Congdon, Atlanta, Ala.; Secretary-Treasurer, James Ferrier, Rome, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. ———— Dallas, Tex. Officers: President, R. B. Stichter, Dallas, Tex.; Secretary's office, 300 Commerce street, Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May 11 and 12, 1910, Milwaukee, Wis Officers: President, R B. Brown, Milwaukee, Wis.; Secretary-Treasurer, H. H. Hyde, Racine, Wis.

Special English Correspondence.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, ENGLAND, Oct. 9th, 1909.

Storage of Gas Coals.—"Know Your Works."—Research and Investigation.

The German Association of Gas and Water Engineers has been collecting information on the important subject of coal storage. A paper dealing with it was submitted by Herr Prenger, of Cologne, and when it is stated that the communication arrived at crystallizing the replies received to a series of questions, from 183 different gas works, the special importance and interest attaching to it will be evident. In reference to the quantity of coal that should be stored, we are informed that the stores should be capable of taking care of 35 per cent. of the annual consumption. No one in England thinks of providing for more than half this quantity at the outside, but the conditions in Germany are different. For various reasons it seems to be the general custom to take equal deliveries all round the year, while severe frosts and other considerations interfere with the regularity of deliveries. The stacks of coal, 30, 40 or even 50 feet high, must be a prominent feature in the fatherland, overtopping the buildings and apparatus, and working under such conditions, questions as to the storage capabilities of various kinds of coal, the effect as regards yield of gas and of coke, produced by 6 to 18 months in stack, and any advantage secured by covered as compared with open storage, assume greater importance than in countries where a 3 to 6-weeks' storage is considered sufficient. Another reason for turning to the report with special interest is that our professional knowledge on the subject is the result of accumulated tradition rather than of systematic investigation. There is a general agreement to the effect that at the best, coal is in no sense improved by storing, and that on the contrary some decided depreciation of an all-round character is the result, and consequently every possible care is taken, both as regards getting the coal fresh and using it with the least delay. But the smaller gas works, at any rate, are not able to exercise much control as regards how the coal is treated before they get it. One would like to get information on several points. For instance, if coal has been stacked in the open for some months before delivery, it would seem that subsequent care in the way of putting it under cover is something in the way of locking the stable after the horse has gone. Again, suppose one lot of coal, fresh from the mine, is delivered and put under cover in dry weather, while another, taken under precisely similar conditions, is saturated with rain in transit, and that both the dry and the wet sample remain in store for 12 months. Would both undergo the same extent of depreciation? The physical condition and properties of the coal exercise a great effect. A hard, close-grained coal, like cannel, may be practically impervious to depreciation by storage, while a soft, porous coal may suffer badly. One would like to know, also, whether the depreciation follows a regular course of so much per month, or if it is more rapid first and gradually diminishes, until at last a point is reached when further exposure is immaterial. Those who have had experience in working various coals under different periods and circumstances of storage will readily follow the nicety of distinction involved.

According to the paper it would appear that there is no settled practice in Germany. Some engineers use covered stores and others do not. No doubt local climatic conditions are somewhat concerned, but after allowing for all that, it would appear that the working conditions of carbonizing have also to be considered. It is evident that some works are more sensitive, if one may use the expression, to the effects of storage depreciation than others. Out of the 183 works, 141 use covered stores, and probably something like a similar proportion would obtain in England, but yet in important new works lately erected, the coal is stored in the open. A distinction must also be drawn between spontaneous ignition and storage depreciation. One cannot cut up a large stack of coal that has remained intact, say for a twelvemonth, without noticing in particular parts something in the way of a small local ignition. Discolored and slightly fired pieces can be picked out. Anything in the way of visible ignition, or evolution of smoke and fumes must obviously mean serious loss and depreciation. But we are rather concerned, at present, with invisible depreciation, such as may go on without any undue heating, odor, or other tangable sign of injury.

Engineers who read Herr Prenger's paper must be prepared to reconsider some fine old crusted notions. There used to be an opinion widely prevalent, to the effect that taking care not to store coal more than 15 feet high, was practically a preventative of spontaneous combustion. While admitting that high stacks lead to crumbling towards the base, and that spontaneous combustion has originated at that part of the heap, we are also told that fires break out at all depths and in all sorts of thicknesses. Large screened coal is usually supposed to be safest to stack, but the author gives the preference to a coal that will pack solid and leave no interstices through which air can percolate. Loose lumps may actually form a channel for admitting and creating a current of air in the neighborhood of a pocket of dust, and the use of ventilating spaces or tubes in the body of the heap is condemned in unsparing terms for a similar reason. Instances are quoted of stacks with ventilating passages that gave signs of trouble, and that the same was stopped and averted by the simple and easy process of filling up the ventilating passages. Moisture in any form has also been always considered as favoring depreciation and risk, but it would appear that this only applies to small proportions, and that coal saturated with water is to some extent protected. One company is actually arranging to store 20,000 tons of coal under water.

According to some figures quoted, the depreciation in the quality of the coke is a serious factor. Under certain circumstances this may exaggerate the reduction in yield of gas by not giving a sufficient heat to maintain a proper carbonizing temperature. Evidently the proportion of fresh coal carbonized has much to do with the sales of coke per ton of coal carbonized. The obvious conclusion is that a stale coal should not be heated over the resulting coke. It is evident that a bad or low temperature would not do justice to the coal, and that the simple plan of using coke from fresh coal in the furnace would make a difference on the yield of gas. Storing coal depreciates the coke not only as a fuel for the retort house, but for sale, by increasing the proportion of dust and small. Storage also has a marked

effect on the heating or calorific value of the coal. After discussing the paper, arrangements were made for a searching and systematic investigation into the whole question.

The proverb, "know thyself," dates back for many centuries, but it doesn't lose in importance as time goes on. I do not quote it from a purely personal standpoint, but as regards a gas manager's knowledge of the undertaking for which he is responsible. There was a time when a newly appointed manager had no choice but to run on in the old rut. As compared with that period, his responsibilities are now enormously increased and expanded. A much higher degree of technical and general education is called for. The manager is not expected to grind on in the same old round, but to avail himself of the numerous improvements and discoveries that modern scientific advancement has placed at his disposal. To do this successfully, he must have a close grasp on local circumstances and surroundings, such as the character of the customers and the employees with whom he is in daily contact, the requirements of the district, the capabilities for extension and the peculiarities of the coal and other materials at command. He must also be well qualified in the old-fashioned art of buying and selling. The greater the resources placed at his command, by liberal education and otherwise, the greater the need for qualities of this kind. And this is the reason why a comparatively ignorant man, so far as modern science is concerned, but with plenty of sound acumen and common sense, may make as good a showing for the consumers and the shareholders as a young man fresh from the latest course of training available. A successful gas manager is something more than a theorist or a dabbler in practical science. He has to sell a good article at a cheap rate, to pay reasonable dividends and fair rates of wages, and he must seek to apply all the technical knowledge that he possesses or can acquire in this direction. When he recommends a new departure he stands practically committed to make a success of it. He is not likely to do this unless, in the fullest sense of the word, he "knows his work."

The season of the autumn meetings of District Associations is now upon us. Many of these gatherings have already been held, and the matter put forward for consideration is in itself a proof of the many sided qualifications that go towards the making of a successful gas manager. A feature this year is that the President of the Gas Institute appears to be making a special endeavor to attend the meetings and to follow up the affiliation scheme that has lately come into exis tence, by pointing out the various ways in which the advantages of combined action can be realized. He has also referred to the need for a greater interest on the part of shareholders and their representatives in research work, which must always be of a cramped and limited character if the members of the Associations have to supply the whole of the funds. The President is not pleading for assistance or support for a scheme for the benefit of gas engineers, but on behalf of the gas industry, which would get the benefit of all improvement or advancement. Gas engineers do not as a rule share in the economies secured by their skill and industry—but that is another story. One need go no further than the first paragraph of this letter to prove the need for such research work. Mr. Helps is not taking up a new hobby, but a subject that he has consistently supported for many years, and it is to be hoped that some tangible result will follow his present campaign.

The numerous alterations in the ways of conducting gas manufacture and supply have created an urgent need for bringing our legislature up to date. Regulations that were framed at a time when cheap petroleum, the incandescent burner and the slot cooker were unknown must of necessity belong to the previous chapter and be practically useless for present day purposes. What is the use, for example, of talking about 6-tenths pressure by day and 8 at night. The Gas Works Clauses Act, 1871, represents the latest endeavor in the way of a general or model Act available for small undertakings that cannot afford a Special Act, and a great deal has happened since 1871. One thing that is much needed is a minimum charge. A consumer can demand a service, meter, etc., but the gas companies only protection is that he shall guarantee a consumption for 3 years at the rate of 20 per cent. on the special outlay. This should be replaced by a percentage on the maximum supply. If a customer asks for a supply equal to 100 cubic feet per hour, it does not seem unreasonable to ask for a guarantee consumption of 1 cubic foot per hour, or only 1 per cent. Then the photometer, so far as practical gas supply is concerned, is an obsolete instrument, but it figures as the principal legalized instrument for testing the quality of gas. And other examples could be cited in proof of the need for modernizing our Acts of Parliament.

Items of Interest
FROM VARIOUS LOCALITIES.

THE Abilene (Tex.) Gas Light and Fuel Company, has filed an amendment to its charter increasing its capital stock from $50,000 to $100,000. The plant needs reconstruction.

MR. R. M. HOWARD, whose resignation as General Manager of the Green Bay (Mich.) Gas and Electric Company becomes effective today, will engage in a special line of work. His successor is Mr. John T. Huntington, of Topeka, Kas.

THE authorities of Minnetonka Beach, Minn., have awarded a franchise for the construction of a "commercial gas plant" to Messrs. George H. Ehrich and C. L. Wood. The plant is to be located at Navarre, and it does look as though some one should disabuse the projectors of the thought that an acetylene plant is the proper thing to install, for such we understand is their current purpose.

MR. W. H. SCHATT, of Chicago, Ills., who was instrumental in completing the consolidation of the gas and electrical properties in Monmouth, Ills., proposes to greatly improve the service and to add a heating system to the plant series. The contract for a 5-foot, double-superheater water gas apparatus has been placed with the Gas Machinery Company, of Cleveland, O.. and work on the same, and on the new electrical equipment as well, is rapidly nearing completion.

MR. JESSEE F. CHURCH, formerly President of the Willimantic (Conn.) Gas and Electric Light Company, has been chosen to fill an important place on the force of the General Electric Company, Schenectady, N. Y.

MR. H. R. HAWKINS seems to be making good as new business Manager for the La Porte (Ind.) Gas Light Company. It is also pleasing to note that gas is in great favor in this bustling, newest of Indiana cities.

WE note above that Mr. George H. Ehrich is engaged with Mr. C. L. Wood in the project of establishing a gas works in Minnetonka Beach, Minn., and to that may be added that he also proposes to construct and operate a plant in New Ulm, Minn. Under his proposition he will there construct a works at an estimated cost of $40,000, provided the authorities will grant the necessary permission, the gas supplied to be manufactured from coke, crude oil, coal and steam. The net rates promised are: Gas used for illumination only, $1.60 per 1,000 cubic feet; for cooking, lighting and power purposes, $1.50 per 1,000, a discount of 10 cents per 1,000, to apply on both sorts of service, dependent on prompt payment. The gas is to have an average thermal value of 550 B.T.U.'s, and the latter are never to be permitted to go below 500. It is also proposed to supply any required number of high candle power street lamps for lighting on public account, at $3.50 per lamp per month, on an all-night and every night lighting schedule. Up to the 19th inst. Mr. Ehrich had secured the signatures of 220 takers. Mr. Ehrich is a resident of Minneapolis.

THE middle initial of Mister William D. Marks stands for Dennis; yes, that is it, plain "Dennis."

MARINE CITY, MICH., residents are anxious for a gas supply. Should that appeal be answered in the affirmative it would be a quite simple matter to carry the currents on to St. Clair.

IT is pretty hard to say who will be the one to supply gas to the camp meeting town of Ocean Grove, N. J., but just now it looks that the Messrs. Maloney will be the chosen vehicles, piping the gas from their Coast Gas Company's station at Belmar, N. J. However, the certain thing is the visitors to the Grove next summer will be able to cook their victuals with gas.

MERRILL HANCOCK, who is Superintendent of the Platteville (Wis.) Gas Company, is a graduate of the Rockford (Ills.) Gas Light and Coke Company's staff.

MR. R. M. REDDING, formerly chemist and Assistant Superintendent to the New Orleans (La.) Gas Light Company, has been appointed General Manager to the Macon (Ga.) Gas Light and Water Company.

vice Mr. A. C. Blinn, whose promotion to the general managership of the Evansville (Ind.) Company has been reported in the JOURNAL.

"THE Springfield (Mass.) Gas Light Company is having a trying time of it over in its West Springfield territory to keep up with the demands for main extensions. The tryout of high candle power lamps for the night lighting of Westfield street was so satisfactory that the Rogers avenue section are insistent they shall be done unto likewise.—V. L."

MR. PATRICK J. NEVINS' resignation as General Manager of the Haverhill (Mass.) Gas Company becomes effective to-day, and Mr. Henry R. Cate has been chosen Director of the Company with the further direction that he will act as its Assistant Treasurer. Mr. Nevins will now go on actively with the construction of the generating and distributing plants of the Plymouth County (Mass.) Gas Company, the formation of which, together with the progress thereon, has been frequently told by the JOURNAL.

THE Clayton, Glassboro and Pitman Gas Company, of Clayton, N. J., has purchased control in the Woodbury Heights (N. J.) Gas Company. The latter plant is to be shut down and the generating system will be hooked up to that of the Clayton-Glassboro corporation.

ANNOUNCEMENTS that the City and County Gas Company and the City and Suburban Gas Company, both of Chicago, have dissolved, recall the days of now close to a decade or two ago, where of the making of gas companies in and about Chicago there was seemingly no end.

THE Massachusetts Humane Society about a fortnight ago awarded a silver medal to Eugene O'Brien who, on July 24th last, at great physical danger to himself, rescued several men from suffocation by gas – the men were working in the subway line, close to an excavation that had been made by the Cambridge Gas Light Company, and about which O'Brien was one of the crew. The Company some time back presented him with $25 as a token of its recognition of his bravery.

THE gas plant proper which is now in process of construction at Nogales, N. M., will be completed by November 5th. Manager Kelsey further gives it as his bounden belief that gas will be turned on for ordinary commercial use by the 1st prox.

MANUFACTURERS of gas plants should get ready to meet Mr. Joseph Stern, of Denver, Col., who asserts that construction work on the proposed gas plant at Laramie, Wyo., will be underway in a fortnight. From what we know of the situation, however, if the early part of December witnesses operation well underway, Mr. Stern will have done well.

MR. DANIEL SEARLE, for many years general foreman for the Meriden (Conn.) Gas Light Company, died at his home in that city the morning of the 15th ult. He was in the Company's service for 20 years or more.

AT a meeting of the Peoples Gas and Electric Company, of Oswego, N. Y., these two gentlemen were elected to the Board in pursuance of a by-law recently adopted to increase the Directorate from 7 to 9 members: Col. John T. Mott and Mr. D. D. Long. The others members are: C. H. Tenney, H. C. Warren, A. B. Tenney, G. M. Bradley, H. P. Wood and D. E. Manson.

"HEREAFTER a magnificent blue specimen of the Heron species will adorn the office of the Utica (N. Y.) Gas and Electric Company. The bird, which was badly burned, when found dead by some workmen in the vicinity of Nine Mile Creek, near South Trenton, had all but put the city electric system out of business through flying against the wires, the contact lasting long enough to create a short circuit.—M. S."

MR. JAMES HAGGERTY has resigned the position of Cashier to the Corning (N. Y.) Gas and Electric Company in order that he might accept a first-class position with the brokerage firm of Spede, Dunn & Kerns, of this city.

THIS decision was rendered some few days ago in the Ohio Supreme Court, in the case of the city of Akron against the East Ohio Gas Company, the latter desired to cease doing business in Akron, because of constant and irritating wrangling with the authorities over rates and the like. The first decision was in favor of the city, but the higher court reverses the lower one and thus rules:

"Where a corporation is formed for the purpose of producing, purchasing and acquiring natural gas, and of piping and transporting gas from the place or places where it is produced, purchased or acquired, to certain named towns and cities situated in the counties along the line of said Company and between the terminals, and to other cities, villages and places in the counties aforesaid, it is not one of the charter obligations of such corporation to furnish natural gas to consumers in all of such cities, towns and villages.

"When a municipal corporation, by ordinance, gives its consent that a natural gas company may enter the municipality, lay down its pipes therein and furnish gas to consumers upon terms and conditions imposed by the ordinance, which are accepted in writing by said company, such action by both parties constitutes a contract and the rights of the parties thereunder are to be determined by the contract itself. While much regard will be given to the clear intention of the parties, yet where the contract is entirely silent as to a particular matter the court will exercise great caution not to include in the contract by construction something which was intended to be excluded.

"Where the contract between a municipal corporation and an incorporated company is silent as to the duration of the franchise, such franchise is not perpetual, but the duration thereof is simply indeterminate, existing only so long as the parties mutually agree thereto. The incorporated company may, therefore, voluntarily forfeit its right to exercise its privileges within the municipality and wholly withdraw therefrom, but in such case the municipality has no right to prevent the incorporated company from removing its properties, nor to take possession of and make use of the same, nor to grant the right to use the same to another company without due process of law.

"But so long as such gas company continues to exercise any of its franchises within the contracting municipality it may be compelled to exercise its franchise therein fairly and without discrimination."

MR. L. V. KUPER, writing from Asbury Park, N. J., under date of the 24th ult., incloses the following: "We are at last (after 8 years of agitation) to have gas in Ocean Grove. It is to cost $1.50 per 1,000 cubic feet. The fee for connecting a meter to the house service will be $5. There will be a minimum charge of 50 cents a month for each meter connected up, and should there at any future time be a reduction in the price of gas in nearby places a corresponding reduction will be made at Ocean Grove. It is understood that, after the consumption of gas shall approximate a fixed amount, there will be a substantial reduction in the price. All the streets of Ocean Grove will be piped, making a total length of more than 7 miles and representing an outlay of about $40,000. The Coast Gas Company, of Belmar, which has been awarded the contract to install gas, will have its own office in Ocean Grove, and consumers will deal directly with the Company in paying their bills. The salary of the Gas Company's representative will be paid by the Company. Temporary quarters have been arranged at E. N. Cole's cottage, corner Main and Pennsylvania avenue, where burners, stoves, fixtures, etc., will be displayed. After April 1 next, other quarters will be secured. Stipulation has been made in the contract that the introduction of gas is not to interfere with those who have private acetylene or other lighting plants in Ocean Grove."

MR. WM. L. WALKER, who since 1899 has acceptably filled the office of Superintendent to the Fitchburg (Mass.) Gas and Electric Company, has handed in his resignation from that position. When asked what it was that prompted such action Mr. Walker simply said, "I'm through, and done with this job."

ACCORDING to its report for the past year, the earnings of the Oklahoma Gas and Electric Company, of Oklahoma City, amounted to $380,572, on which its royalty payment to the city amounted to $1,652.

MR. FRANK W. KORT has assumed the duties of Superintendent of the generating division of the system of the Sterling (Ills.) plant.

MR. ZEUNER M. JENKS, who served the Woonsocket (R. I.) Gas Company capably and efficiently for many years as Superintendent, has accepted a position on the sales' staff of Allen & Reed, Inc., Providence, R. I.

THE AMERICAN GAS LIGHT JOURNAL

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MONDAY, NOVEMBER 1, 1909.

The Market for Gas Securities.

The market for city gas shares was dull and weak in the interim. In fact, Consolidated sold below 138, which figure is lower than any recorded in it for some time. It is rather queer the drop should happen right after certain figures were presented respecting the business which it is doing, which figures, rough hew them as we may, will not down the fact that the Company is earning at least 6 per cent. per annum; yes, a "big six." The opening price to-day (Friday) was 138¼ to 138½.

Brooklyn Union is right on the heels of Consolidated, the bid price being 138. This Company's business just now is little short of amazing. Peoples, of Chicago, is a bit off, the offered price being 114¼. The regular quarterly dividend of 1¾ per cent. on its shares is payable the 26th prox.

The United States Circuit Court of Appeals has affirmed the decision of the Circuit Court ordering Commissioner Shields, as custodian, to turn over to the Northern Union Gas Company the sum of $19,000 remaining out of the moneys set aside to reimburse those who in that district paid in excess of 80 cents per 1,000 cubic feet for gas, during the period in which the constitutionality of the 80-cent rate was being determined.

The Wyoming Valley Trust Company, of Pennsylvania, has notified the holders of the bonds issued by the Gas Company, of Luzerne County, Pa., and for which the former is Trustee, are called and are now redeemable. Interest on these will cease the 22d inst.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

NOVEMBER 1.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$73,177,000	100	138¼	138½
Central Union Gas Co. — 1st 5's, due 1972, J. & J.	3,000,000	1,000	96	101
Equitable Gas Light Co.— Con. 5's, due 1932, M. & S.	1,000,000	1,000	—	105
Mutual Gas Co.	2,500,000	100	155	165
New Amsterdam Gas Co.— 1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	100	101½
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	37	43
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	100	101
New York and East River— 1st 5's, due 1944, J. & J.	3,500,000	1,000	104	107
Con. 5's, due 1945, J. & J.	1,500,000	—	97	101
Northern Union— 1st 5's, due 1927, J. & J.	1,250,000	1,000	94	100
Standard	5,000,000	100	—	75
Preferred	5,000,000	100	70	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	138	142
1st Con. 5's, due 1948, M. & N.	15,000,000	—	91½	92
Yonkers	290,650	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	1	1⅛
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	65
" 1st Mtg. 5's	500,000	1,000	90	96
Boston United Gas Co.— 1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	73	73½
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,000,000	1,000	104	106¼
Cincinnati Gas and Electric Co.	20,500,000	100	92	93
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt & Heating Co.	1,682,750	100	90¼	91
Preferred	3,026,500	100	75¼	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	—	105
Mortgages, 6's	3,000,000	—	—	118
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	458,000	—	102	105
Detroit City Gas Co	5,000,000	50	—	50
" Prior Lien 5's	4,619,000	1,000	97	100¼
Detroit Gas Co., 5's	381,000	1,000	75	80
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	—	112	113½
" Bonds, 5's	10,500,000	—	103	103½
Indianapolis	2,000,000	—	60	70
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	200,000	1,000	97	100
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	38
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede Gas Co., St. Louis.	10,000,000	100	104	105
Preferred	2,500,000	100	—	98
Bonds	10,000,000	1,000	104	—
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,370,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	350,000	1,000	106	108½
" 6 per cent. scrip, due 1910	100,000	25	60	60½
Massachusetts Gas Companies, of Boston	25,000,000	100	74½	75
Preferred	25,000,000	100	95	95½
Montreal Gas Co., Canada	2,000,000	100	218	218½
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
New Haven Gas Co.	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	114½	114¾
1st Mortgage	20,100,000	1,000	—	—
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104½	105½
San Francisco Gas Co., Cal.	15,500,000	—	—	—
St. Joseph Gas Co.— 1st Mtg. 5's	751,000	1,000	100	102
St. Paul Gas Light Co.	1,500,000	100	45	47
1st Mortgages, 6's	650,000	1,000	113	116
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	2,465,000	1,000	90	95
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	100	101
Washington (D. C.) Gas Co.	4,600,000	20	337	340
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	230	—

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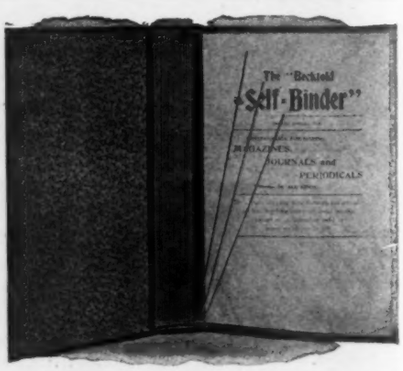

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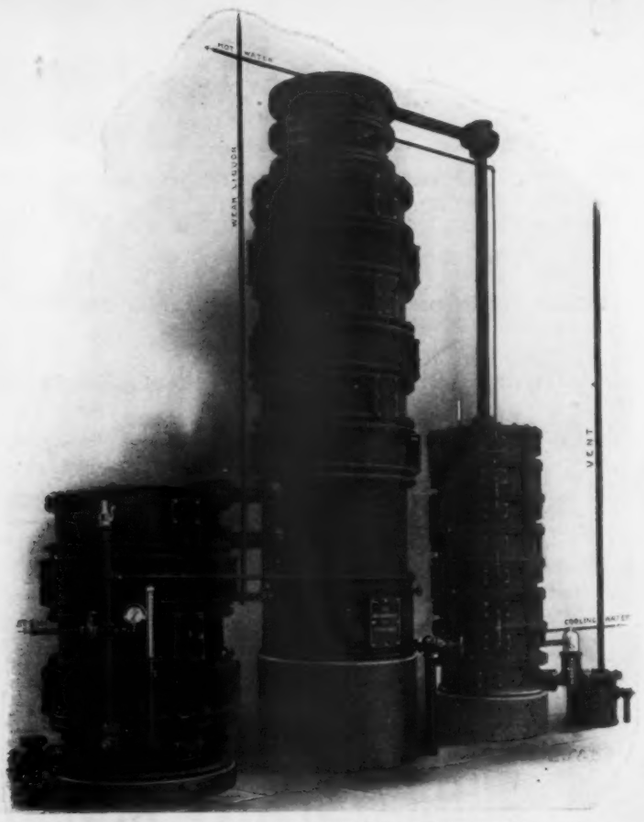

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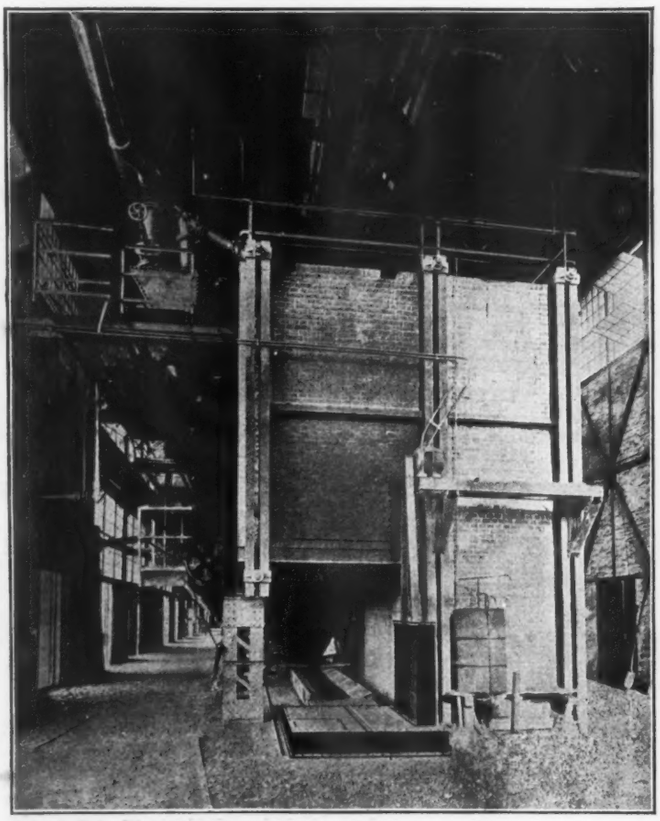

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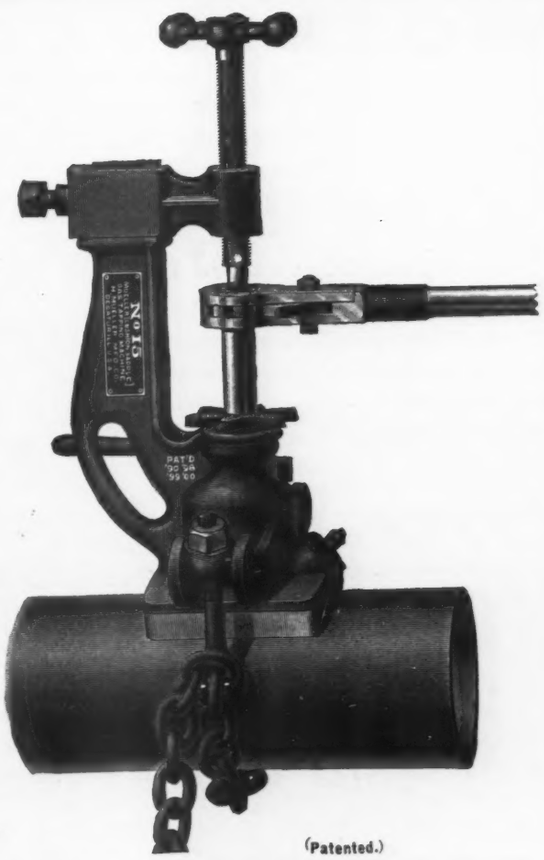

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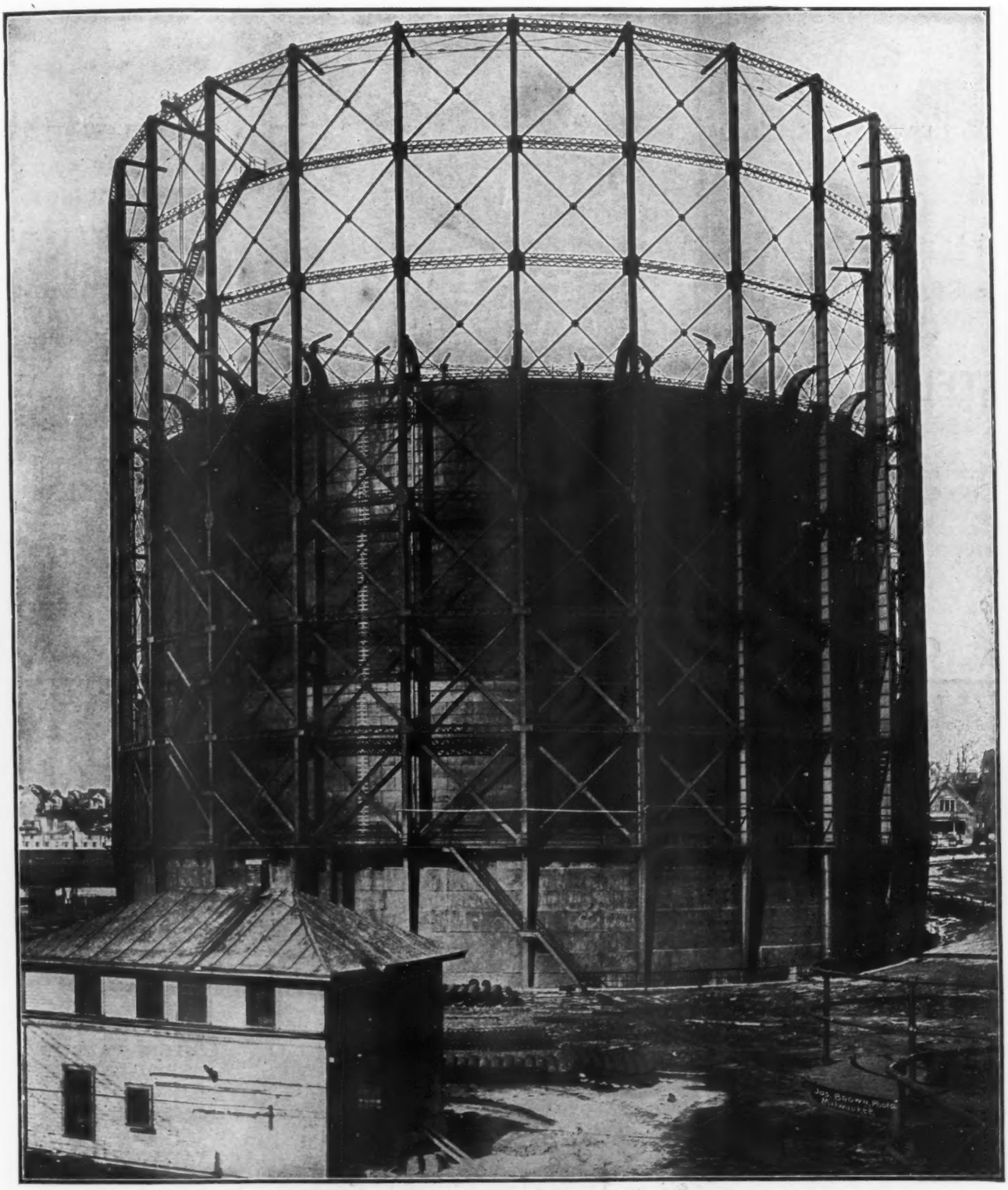

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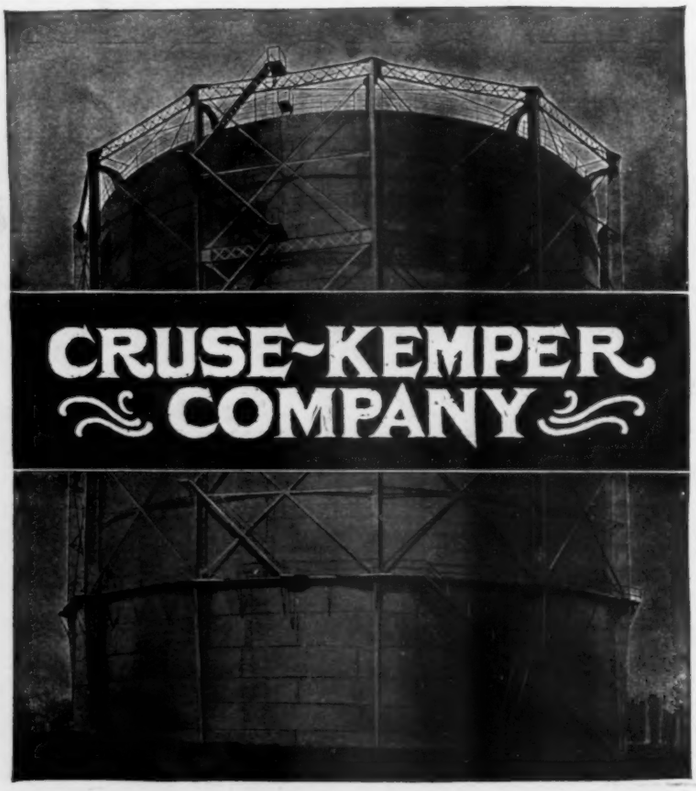

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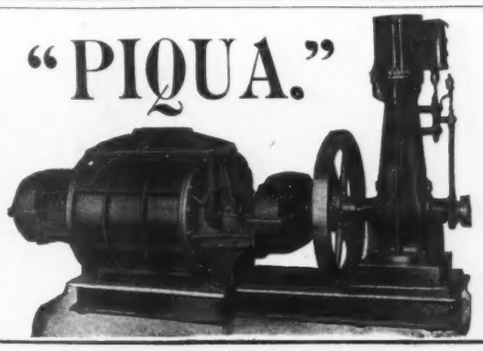

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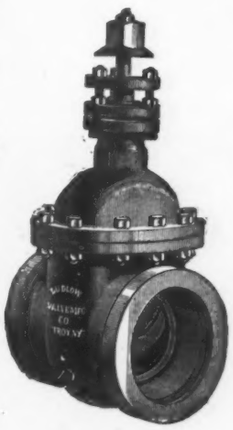

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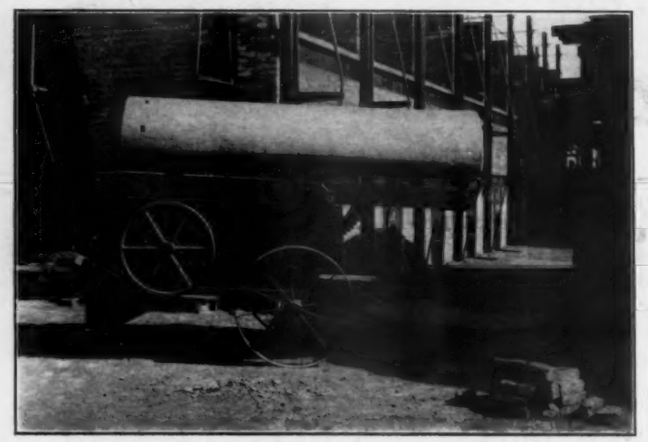

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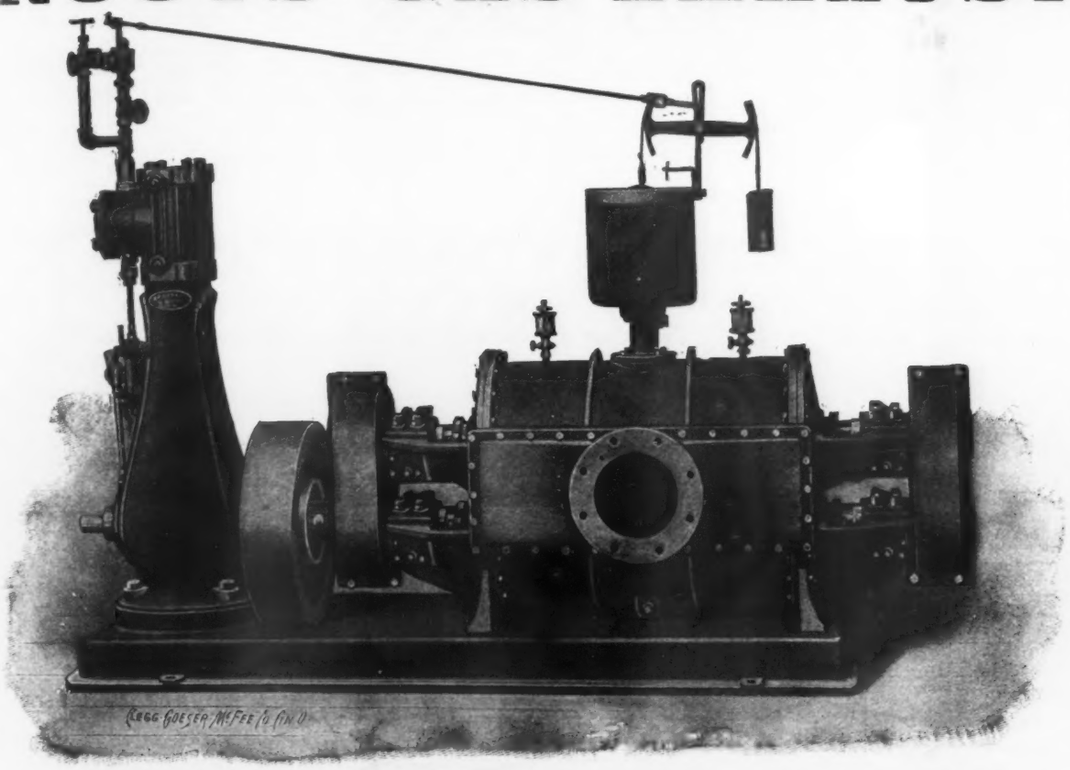

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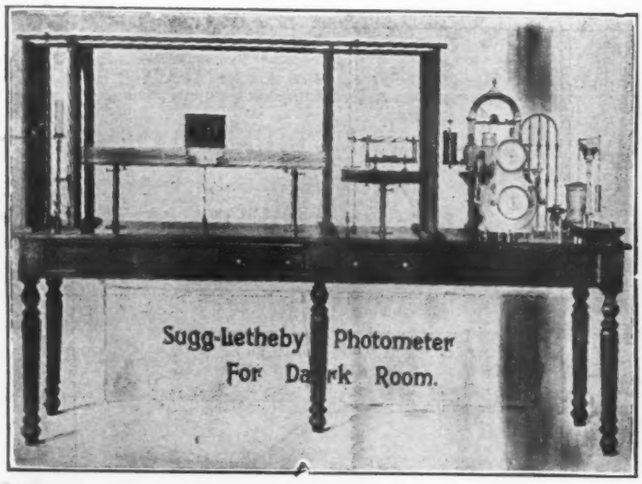
NOVEMBER, 1909.

Day of Week.	Table No. 1. Following the Moon. Date.	Light.	Extinguish.
Mon.	1	5.30PM	9.00PM
Tue.	2	5.30	10.00
Wed.	3	5.30	11.00
Thu.	4	5.30LQ	12.10AM
Fri.	5	5.30	1.10
Sat.	6	5.30	2.10
Sun.	7	5.20	3.10
Mon.	8	5.20	4.10
Tue.	9	5.20	5.40
Wed.	10	5.20	5.40
Thu.	11	5.20	5.40
Fri.	12	5.20NM	5.40
Sat.	13	5.20	5.40
Sun.	14	5.10	5.50
Mon.	15	5.10	5.50
Tue.	16	5.10	5.50
Wed.	17	7.20	5.50
Thu.	18	8.20	5.50
Fri.	19	9.30	5.50
Sat.	20	10.40FQ	5.50
Sun.	21	11.50	5.50
Mon.	22	1.10AM	5.50
Tue.	23	2.20	5.50
Wed.	24	3.30	5.50
Thu.	25	No L.	No L.
Fri.	26	No L FM	No L.
Sat.	27	No L.	No L.
Sun.	28	5.10PM	6.50PM
Mon.	29	5.10	7.40
Tue.	30	5.10	8.40

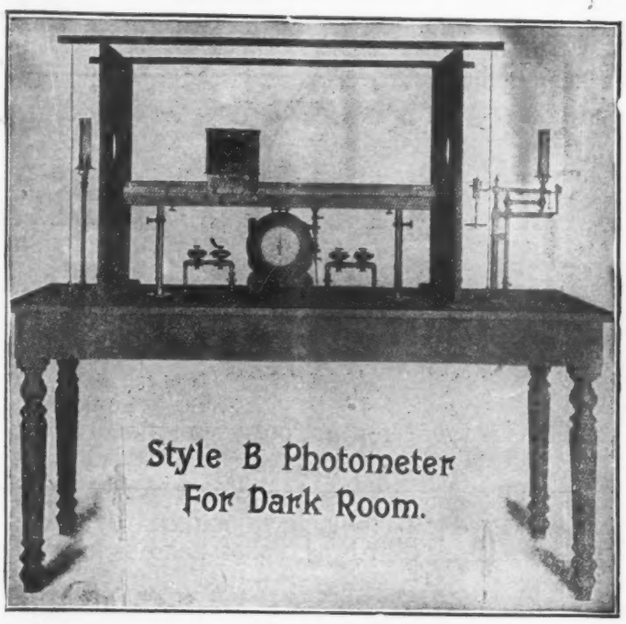
TOTAL HOURS DURING 1909.

By Table No. 1.

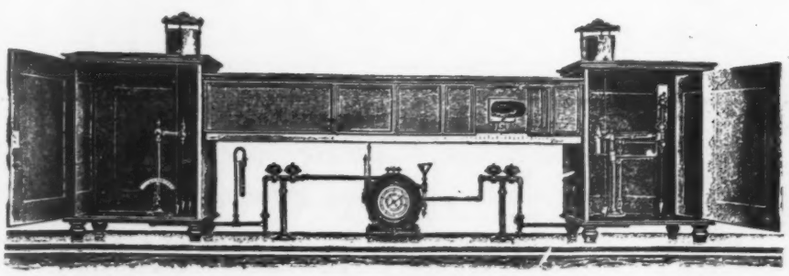
	Hrs.Min.
January	212.20
February	183.40
March	173.00
April	151.10
May	144.10
June	138.50
July	145.40
August	160.30
September	180.00
October	201.00
November	216.30
December	233.40
Total, yr.	2140.30



Sugg-Liethe by Photometer For Dark Room.



Style B Photometer For Dark Room.



Closed Photometer For Light Room.

CIRCULARS SENT ON REQUEST.

PUBLIC LIGHTING TABLE.

NOVEMBER, 1909.

Day of Week.	Table No. 2. New York City. All Night Lighting. Date.	Complete Lighting in One Hour From Time Given P. M.	Complete Extinguishing in 50 Minutes From Time Given A.M.
Mon.	1	4.37	5.17
Tue.	2	4.37	5.17
Wed.	3	4.37	5.17
Thu.	4	4.37	5.17
Fri.	5	4.27	5.27
Sat.	6	4.27	5.27
Sun.	7	4.27	5.27
Mon.	8	4.27	5.27
Tue.	9	4.27	5.27
Wed.	10	4.27	5.27
Thu.	11	4.27	5.27
Fri.	12	4.17	5.32
Sat.	13	4.17	5.32
Sun.	14	4.17	5.32
Mon.	15	4.17	5.32
Tue.	16	4.17	5.32
Wed.	17	4.17	5.32
Thu.	18	4.17	5.32
Fri.	19	4.12	5.42
Sat.	20	4.12	5.42
Sun.	21	4.12	5.42
Mon.	22	4.12	5.42
Tue.	23	4.12	5.42
Wed.	24	4.12	5.42
Thu.	25	4.12	5.42
Fri.	26	4.07	5.52
Sat.	27	4.07	5.52
Sun.	28	4.07	5.52
Mon.	29	4.07	5.52
Tue.	30	4.07	5.52

TOTAL HOURS DURING 1909.

	Hrs.Min.
January	428.30
February	358.15
March	353.10
April	298.10
May	263.20
June	234.45
July	248.30
August	278.00
September	311.25
October	370.05
November	397.40
December	438.35
	3980.25
Deduct on account of 50 min. extinguishing time	30.25
Total, yr.	3950.00

NEW YORK, 318 West 42d Street.
BOSTON, 820 Beacon Building.
PHILADELPHIA, Bread and Arch Streets.
ST. LOUIS, 712 Roe Building.
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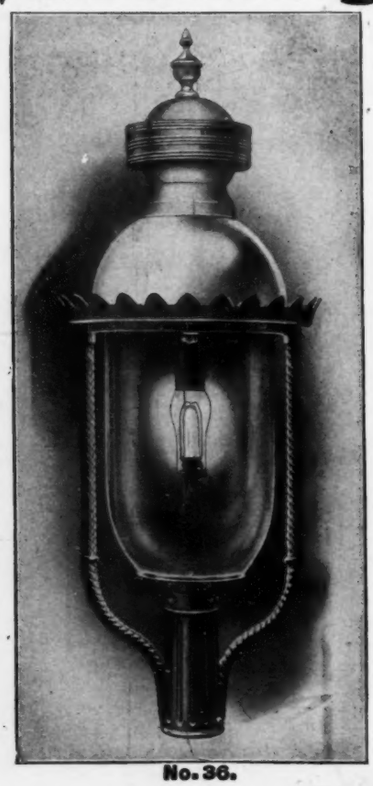
WELSBACH STREET LIGHTING COMPANY



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Which includes its specially DESIGNED and PATENTED BURNER for PARK LIGHTING exclusively.

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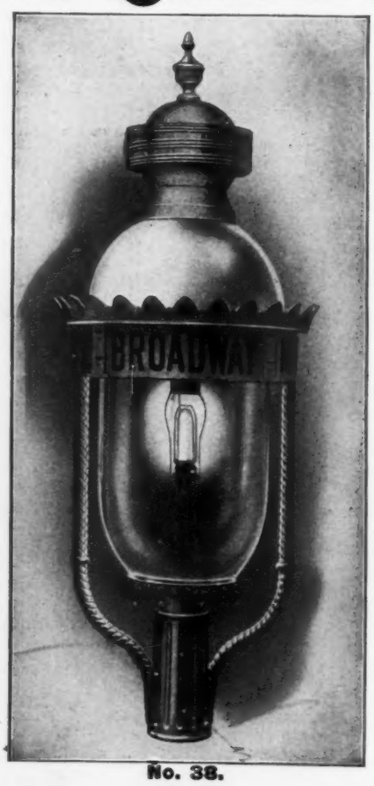

No. 38.

Welsbach Inverted Portico Lamps

No. 901. INVERTED PORTICO LAMP.
Single Burner.

For all semi-exposed places—porticos, entrances, etc. Simple in construction, few parts; exterior made of enameled steel, interior parts of heat-resisting material that are practically indestructible. Wind, storm and insect proof.

The globes on designs No. 901 and No. 902 are supported in a flanged reflector that provides for heat expansion. The reflector being hinged, it can readily be lowered for cleaning or trimming the lamp.

Gas and pilot-flame adjustment by means of needle valves from outside of lamp. The pilot-flame is protected and will not blow out.

Three Styles from which to Choose:

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No. 900.

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No. 901.

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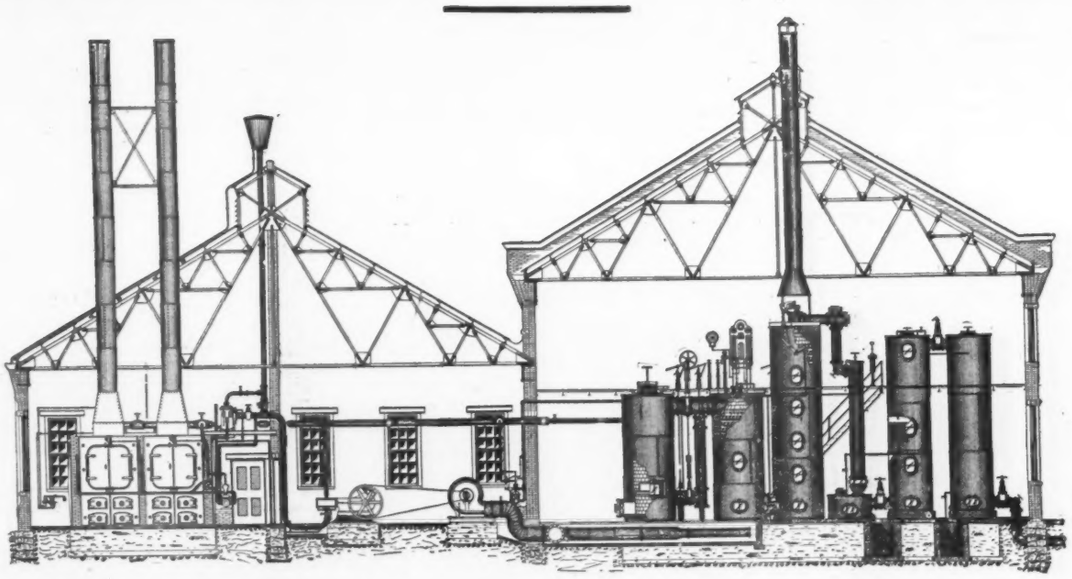

TOTAL SETS INSTALLED TO JULY 1, 1909, ... 704
TOTAL DAILY CAPACITY TO JULY 1, 1909, ... 577,440,000 cu. ft.

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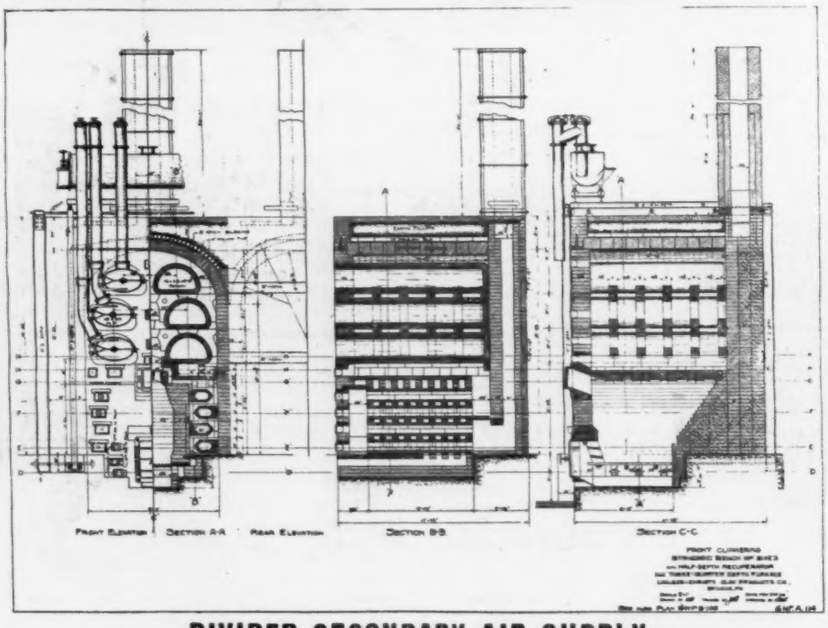

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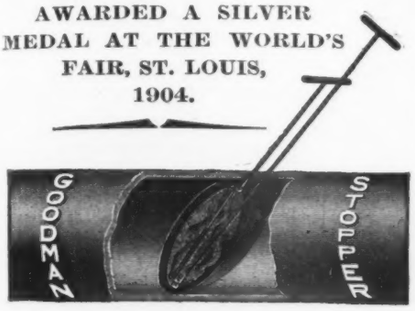

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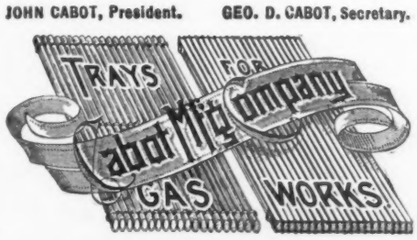

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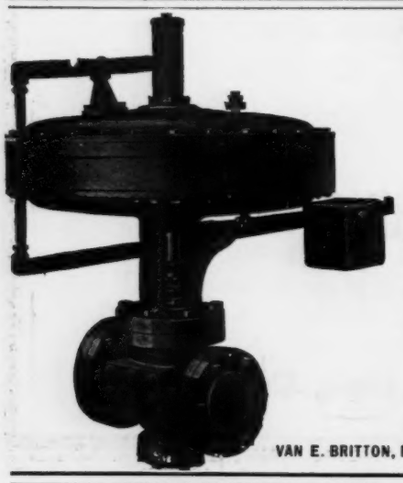

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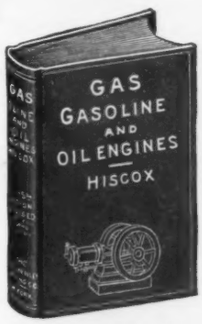

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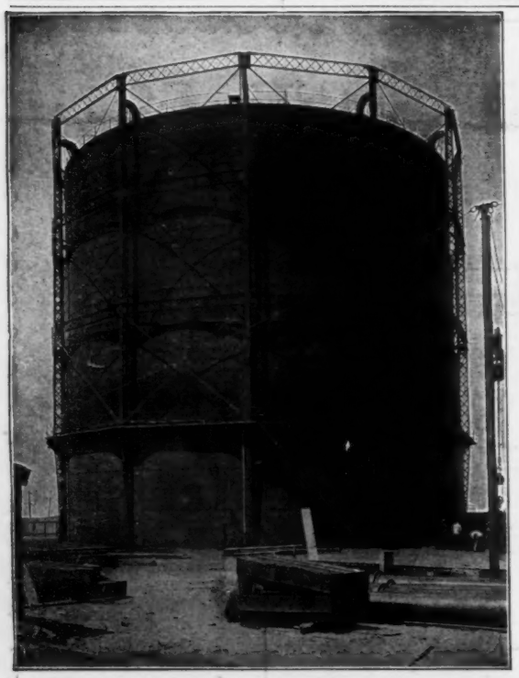

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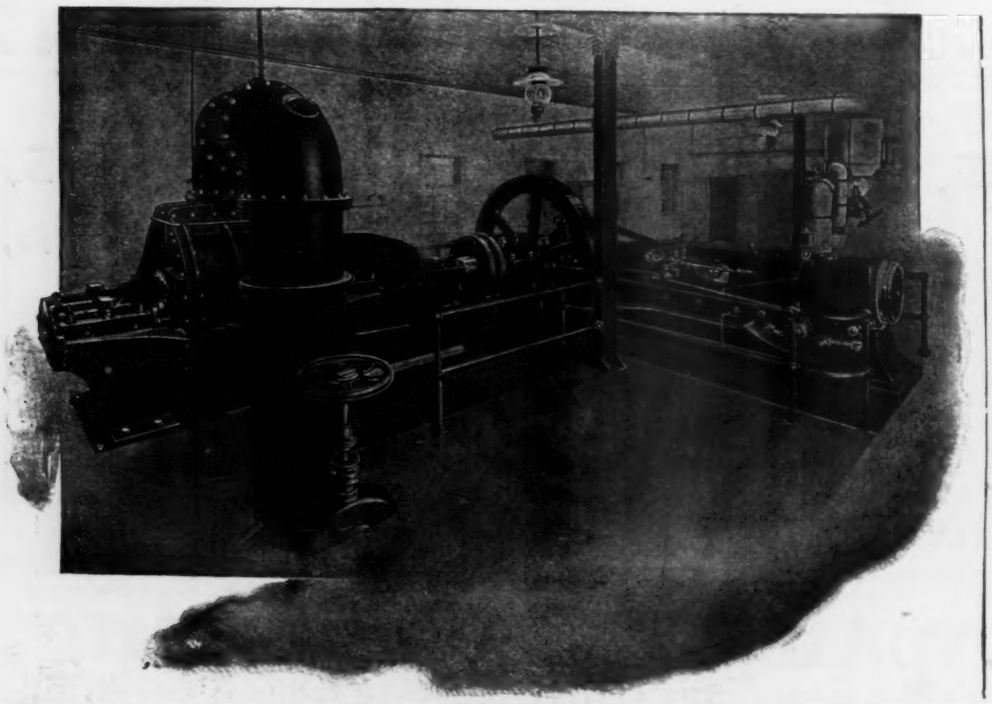

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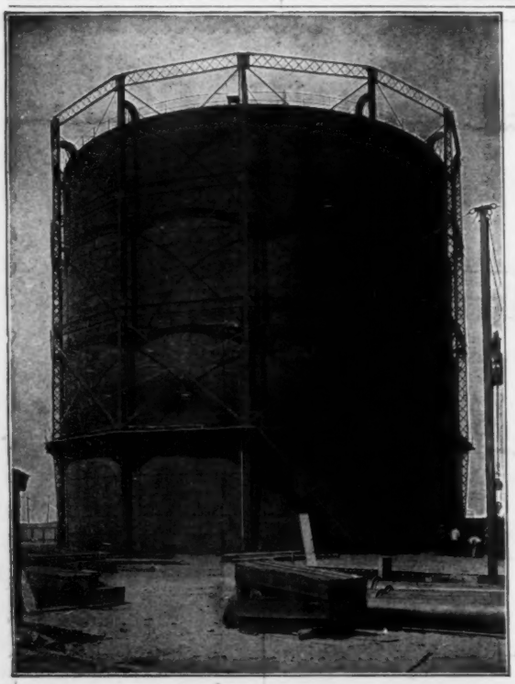

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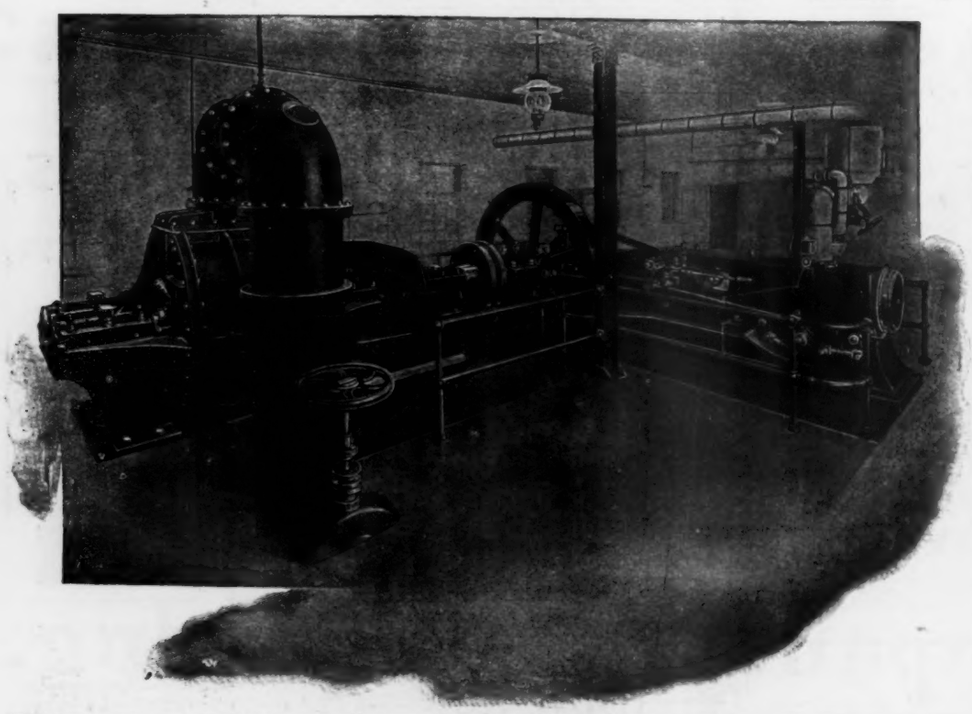

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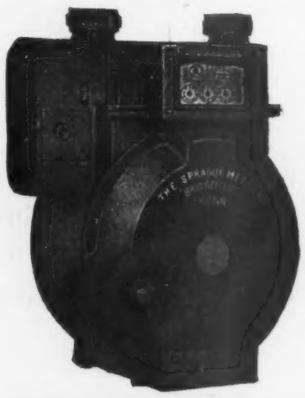

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